SHARP SERVICE MANUAL

CODE: 00ZERA430VSME

ELECTRONIC CASH REGISTER

MODEL ER-A430

SRV Key : LKGIM7113RCZZ
PRINTER: DP630-S
(For "V" version)

CONTENTS

CHAPTER 1. SPECIFICATIONS 1
CHAPTER 2. OPTIONS 5
CHAPTER 3. SRV. RESET AND MASTER RESET 6
CHAPTER 4. HARDWARE DESCRIPTION 7
CHAPTER 5. TEST FUNCTION 16
CHAPTER 6. DOWN LOAD FUNCTION 18
CHAPTER 7. CIRCUIT DIAGRAM & PWB LAYOUT 22

PARTS GUIDE

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

This document has been published to be used for after sales service only.
The contents are subject to change without notice.

CHAPTER 1. SPECIFICATIONS

1. Appearance/Rating

1) Appearance

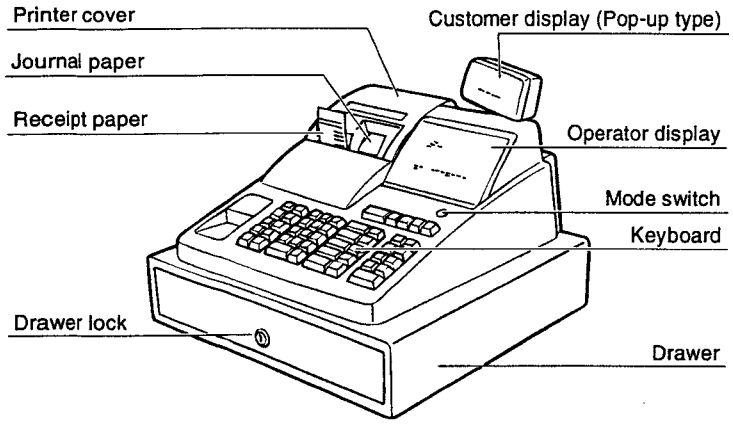


Fig. 1-1

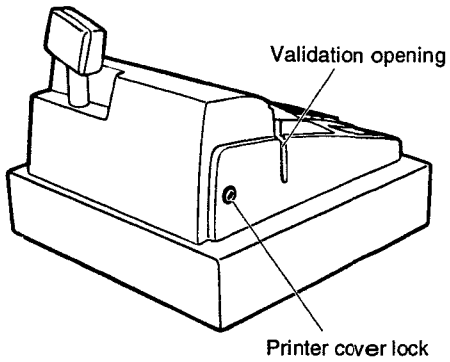


Fig. 1-2

2) Rating

Power source	AC local voltage (±10%) 60Hz
Power consumption	Standby: 11 W Maximum: 27 W, with options installed.
Operating temperature	0°C~40°C (32°F~104°F)
Operating humidity	10%~90% (RH)
Physical dimensions, including the drawer	420(W) x 426(D) x 298(H)mm: Germany 420(W) x 426(D) x 288(H)mm: UK and Australia
Weight	13.5kg: Germany 12.9kg: UK and Australia

2. Keyboard

1) Standard keyboard layout

STD : 52 Key
MAX : 66 Key

					AMT	PLU/SUB	%	⊖	CASH #	
↑ RECEIPT	↑ JOURNAL	⊗	•	CL	5	10	15		VAT	AUTO
VP	RCPT	7	8	9	4	9	14		CR1	CR2
NS	#/TM	4	5	6	3	8	13		EX1	CH
PO	RA	1	2	3	2	7	12		ST	
RF	∞	0		00	1	6	11		TL	

Fig. 2-1

2) Key top name

① Standard key top

Keytop	Description
0 to 9, 00	Numeric keys
•	Decimal point key
C L	Clear key
⊗	tiplication key
DEPT. 1~15	Department 1~15 keys
↑ RECEIPT	Receipt paper feed key
↑ JOURNAL	Journal paper feed key
RCPT	After receipt issue key
VP	alidation print key
#/TM	Non-add code entry key/Time display key
NS	No sale key
VAT	Value added tax key
⊖	Markdown/Discount keys
%	% 1 keys
AUTO	Atutomatically entry key 1
PO	Paid out key
RA	Received account key
RF	Refund key
∞	Void key
PLU/SUB	PLU/Subdept. code entry key
EX1	rrency Exchange 1 keys
CASH #	Cashier code-entry key
ST	Tax included subtotal key
CH	Check key
TL	Total key
AMT	Amount entry key
CR1	Credit 1 key
CR2	Credit 2 key

② Option key top

Keytop	Description
DEPT. 16~40	Department 16~40 keys
⊖ 2	Markdown/Discount 2 key (Coupon)
% 2 ~ 4	%2 ~ 4
CR 3~8	Credit 3~8 keys
CA 2	Cash 2 key
EX 2~4	Currency Exchang 2~4 keys
AUTO 2 ~5	Automatically entry key 2~5

3. Mode switch

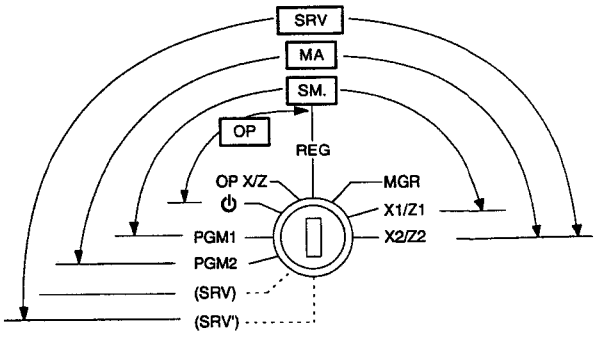


Fig. 3-1

* The key can be removed in the REG or OFF position.
* In the SRV' mode, key inputs are prohibited and no display is made.
* With the key in the off position power is not supplied to the main PWB.

[Functions]

- Function for each key position
- SRV': System reset
- SRV: Service mode (Service programming)
- PGM2: Allows programming of an item that is not changed frequently, in addition to the PGM1 mode programming.
- PGM1: Allows programming of items frequently changed (e.g. department, PLU pricing, and discount rate setting).
- OP/XZ: Allows X or Z operation by servers or cashiers.
- REG: Allows registrations.
- MGR: Allows the operations, by authorized person such as a manager (e.g. correction after transaction finished or cancellation of entry limits), which are not permitted to ordinary cashiers.
- X1/Z1: Allows reading and resetting of a day's sales total.
- X2/Z2: Allows reading or resetting sales totals in a specified period.
- ⏻ : Switching off the display to prevent key board entries.
  (The setting turn off the AC power.)

4. Display

1) Layout

① Operator display

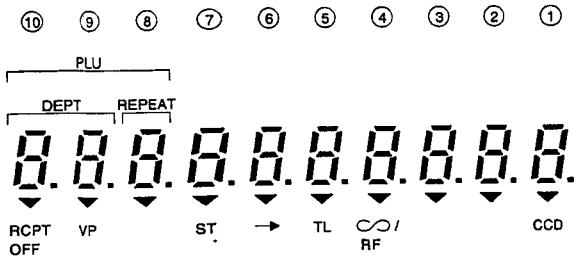


Fig. 4-1

② Customer display

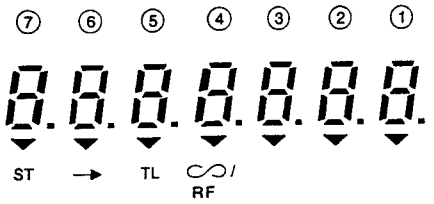


Fig. 4-2

2) Display contents

Display contents	Display position	Description
Numerals	8-1	Amount, numerals
Minus sign	8-2	– : Minus
Error message	10	E: Error message (only "E" symbol) P: Paper near empty (Need to install paper near end sensor)
Mode status	10	P: PGM mode, ␣ : Void mode
Department	10-9	Displayed in 2 digits (1-00). No zero suppression.
PLU	10-8	No zero suppression.
Repeat	8	Starts with "2"
Decimal point	4-1	Decimal point, TAB

3) Lamp (▼ comes on)

Notation on filter	Description
RCPT OFF	Comes on when receipt issue is stopped.
VP	Comes on when validation printing is compulsory.
ST	Comes on when each subtotal is displayed.
→	Comes on when change amount is displayed after tendering.
TL	Comes on when transaction is finished.
∞	Comes on when a void entry or refund entry are made.
RF	Comes on when the void key or RF key are depressed
CCD	Comes on when CCD registration

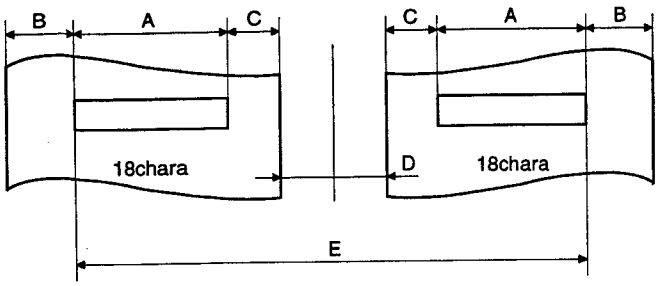
5. Printer (DP630-S)

1) Specifications

- Part number: DP630-S
- No. of stations: 2
- Printing system: Mechanical serial dot
- Direction of printing: Bidirectional
- Printing capacity: Receipt – 18 characters
Journal – 18 characters
Validation – 40 characters (one line only)
- Character size: 2.4(H) × 1.36(W) mm
Print pitch:
Column distance 1.59 mm
Row distance 5.08 mm
- Total number of dots: 180 dots per line 360 dots per line (including half dot)
- Font: 7 × 7 dots (including half dot)
Space between characters – 1 dot
- Distance between dots: 0.353mm(W), 0.353mm(H)
- Print speed: 3.0 lines/sec. (Approx. 24V)
- Paper feed speed: Approx. 18 lines/sec.
- Reliability: MCBF – 2.5 million lines (excluding the print head)
Head life – 50 million characters (in the case of printing average 2 dots per character per wire
- Validation form sensor: No

2) Printing area

Receipt/journal



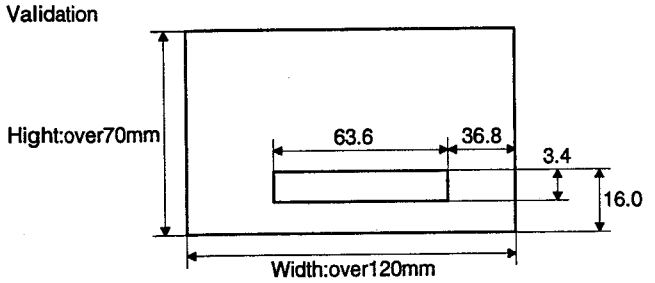
A	B	C	D	E
28.7	6.7±1.5	2.6±1.5	1.0	63.6

RECEIPT JOURNAL

Unit : mm

Fig. 5-1

Validation form



Unit : mm

Fig. 5-2

3) Paper

- Paper roll dimensions: 37 ~ 38mm in width, 80mm in diameter
- Paper quality:
  Journal
  Bond paper (paper thickness: 0.06 to 0.085mm, paper weight: 52.3 to 64g/m^2)
  Validation form
  Thickness: 0.07 to 0.14mm
  Size: 120mm or more (W) X 70mm or more (H)

4) Inking

- Ink supply system: Ink ribbon
- Form: Cartridge
- Specification: Material – Nylon
- Ribbon life: 5 million characters
- Print color: Purple (single color)

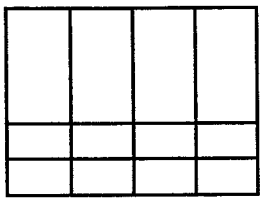
5) Cutter

- Method: Manual

6. Drawer

1) Cash compartment

- Detachable from the drawer case
- Paper money compartment not detachable from coin compartment
- Available number of compartments: 4B/8C
- Kinds of available compartment assembly



4B/8C

- Size: 420 (W) x 423 (D) x 114 (H) mm

Fig. 6-1

2) Keylock

- Key lock location
  Front
- Key operation
  Lock = 90 degrees counter clockwise
  Unlock = 90 degrees clockwise rotation

CHAPTER 2. OPTIONS

1. System configuration

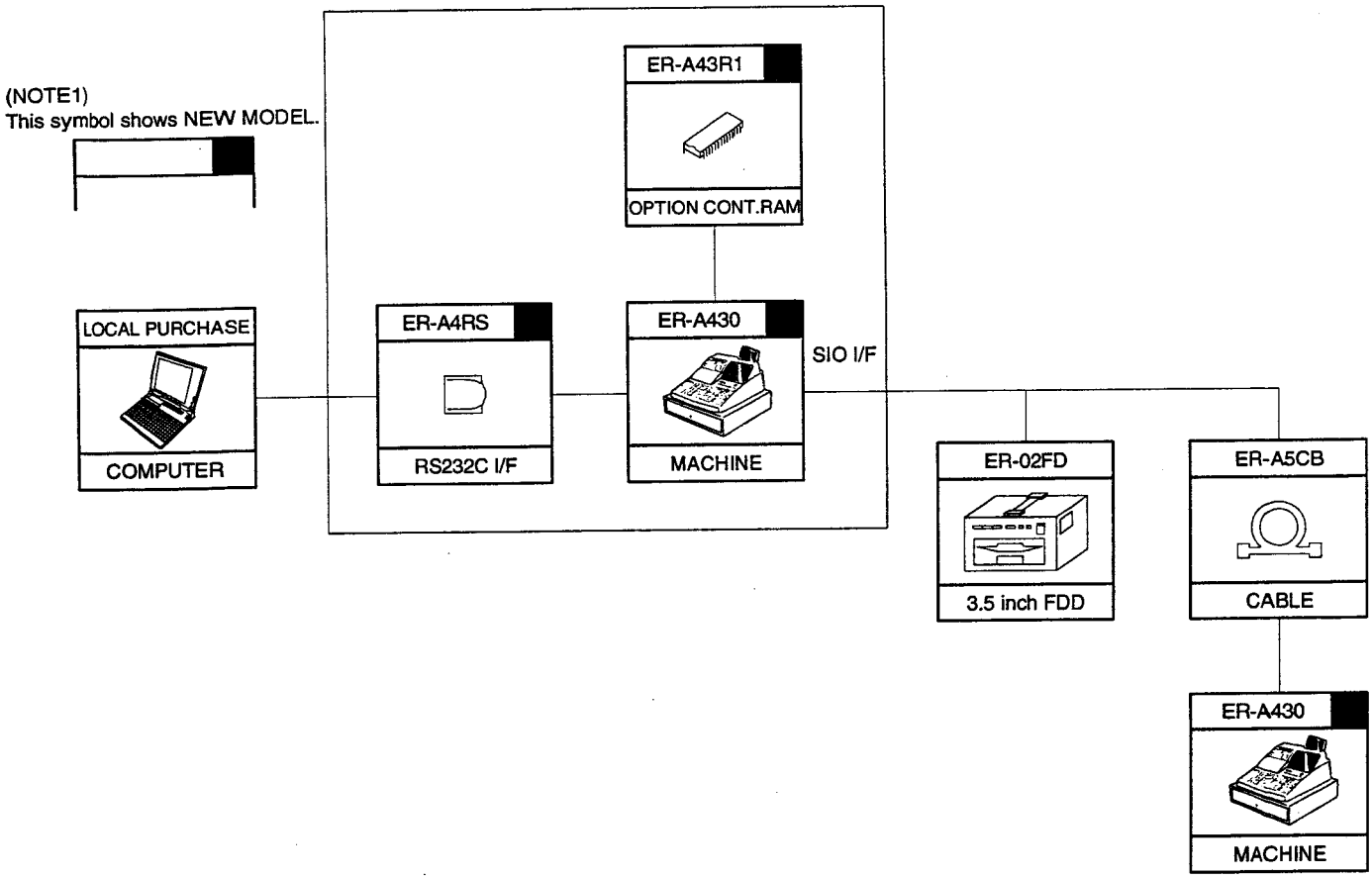


Fig. 1-1

2. Options

NO.	NAME	MODEL	DESCRIPTION
1	ON-LINE SYSTEM	ER-A4RS	1port RS-232C I/F
2	CONTROL ROM	ER-A43R1	Control for ER-A4RS
3	PRESETS LOADER	ER-02FD	FD unit
4	CONNECTION CABLE	ER-A5CB	Loader cable

3. Service options

NO.	NAME	PARTS CODE	PRICE RANK	ESCRIPTION
1	SERVICE KEY	LKGIM7113RCZZ	AK	For the mode switch
2	DRIP-PROOF KEY BOARD COVER	GCOVB6985RCZZ	AY	
3	MODE KEY GRIP COVER	LKGIM7126RCZZ	AL	OP key only
4	SHIELD PLATE KIT	DKIT-8644BHZZ	BF	Bottom cabinet required (For U.K. and Austraria)
5	JOURNAL NEAR END SENSOR	DKIT-8653RCZZ	BA	
6	4 STAY DOWN CASHIER SWITCH	DKIT-8648BHZZ	AZ	
7	OPTION DRAWER	GBOXD7114BHZZ	BW	

4. Service tools

NO.	NAME	PARTS CODE	PRICE RANK
1	SIO LOOP BACK CONECTOR	UKOG-6704RCZZ	AX
2	TRANS EXTENSION PWB	UKOG-6678RCZZ	AX
3	KEY BOARD EXTENSION CABLE (27pin, 500mm)	UKOGZ6712RCZZ	AP

5. Supplies

NO.	NAME	PARTS CODE	PRICE RANK	DESCRIPTION
1	ROLL PAPER	DPAPR1022CSZZ	AV	5rolls/pack
2	INK RIBBON	PRBN-6642RCZZ	AU	Cartrige type 5million char.
3	STAMP INK	UINK-1001CCZZ	AK	5 cc

6. Options

For installation of the options, refer to the Installation Manual which is separately issued from this manual.

7. How to use service tools

7-1. SIO loop back connector: UKOG-6704RCZZ

- External view

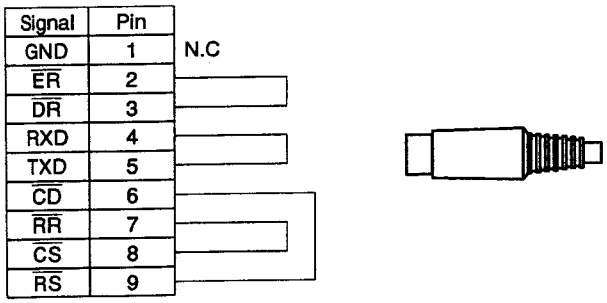


Fig. 7-1

- Purpose: Used for "SIO Test 1 (SIO loop back test)."
- Installation view:

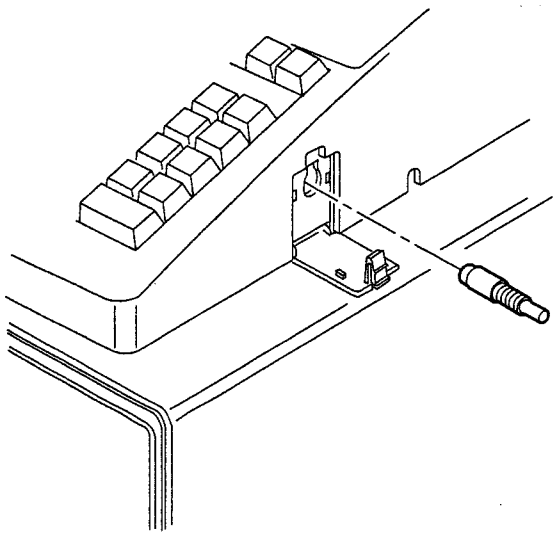


Fig. 7-2

- How to use: Connect the UKOG-6704RCZZ to the body and perform the following key operations:

  SRV mode: 12 → CA/AT

CHAPTER 3. SRV. RESET AND MASTER RESET

1. SRV. reset (Program Loop Reset)

Used to return the machine back to its operational state after a lock-up has occurred.

Procedure

- Method 1
  1) Un plug the AC cord from the wall outlet.
  2) Set the mode switch to (SRV') position.
  3) Plug in the AC cord to the wall outlet.
  4) Turn to (SRV) position from (SRV') position.
- Method 2
  1) Set the mode switch to PGM2 position.
  2) Unplug the AC power cord.
  3) While holding down JOURNAL FEED key and RECEIPT FEED key, plug in the AC cord.

Note: When disassembling and reassembling always power up using method 1 only. Method 2 will not reset the CKDCV.

Note: SRV programming job#926-B must be set to "4" to allow PGM program loop reset.

2. Master reset (All memory clear)

Used to clear all memory contents and return machine back to its initial settings. return keyboard back to default. for default keyboard layout.

Procedure

1) Un plug the AC cord from the wall outlet.
2) Set the MODE switch to the (SRV') position.
3) Plug in the AC cord to the wall outlet.
4) While holding down JOURNAL FEED key, turn to (SRV) position from (SRV') position.

CHAPTER 4. HARDWARE DESCRIPTION

1. Hardware block diagram

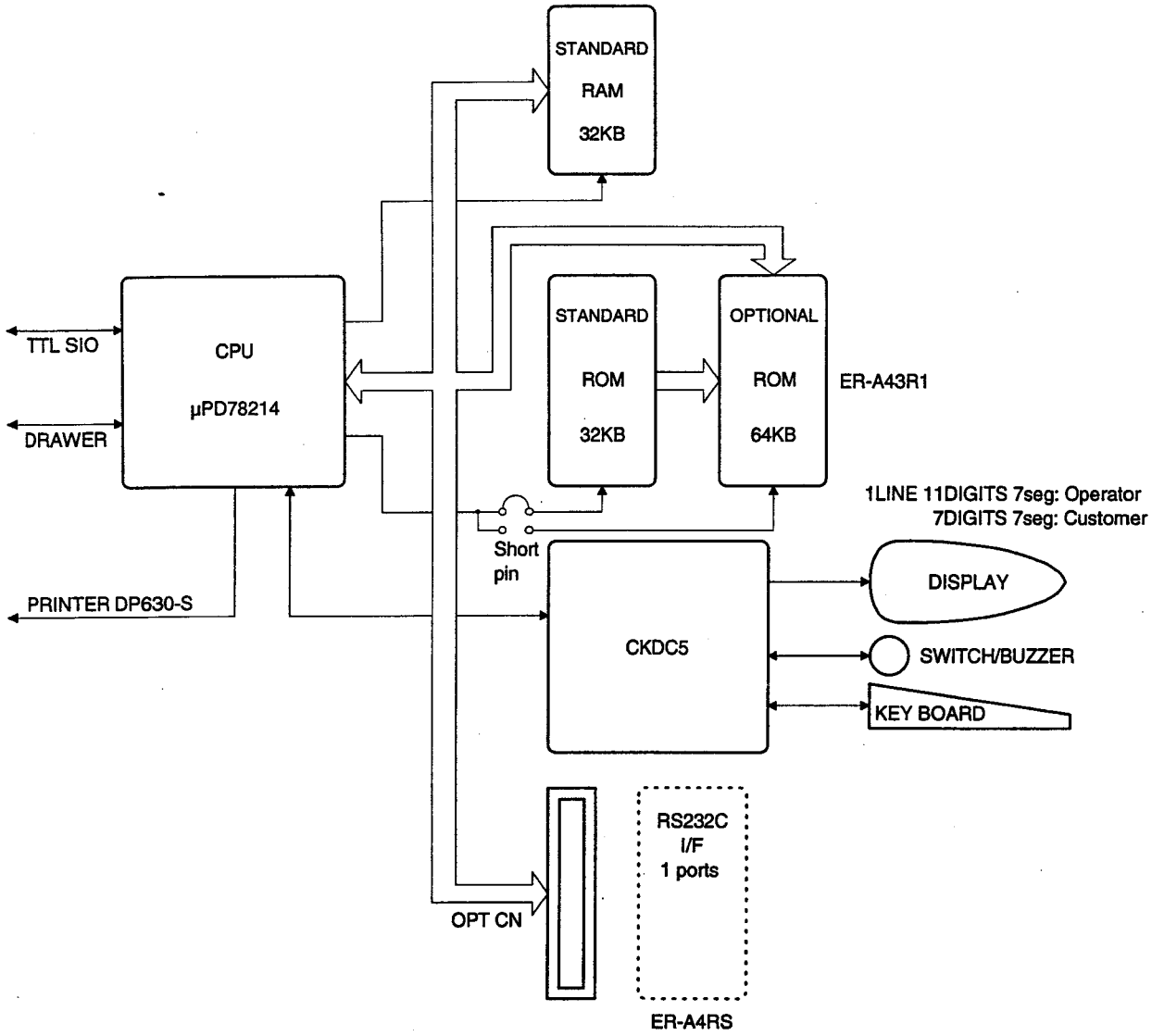
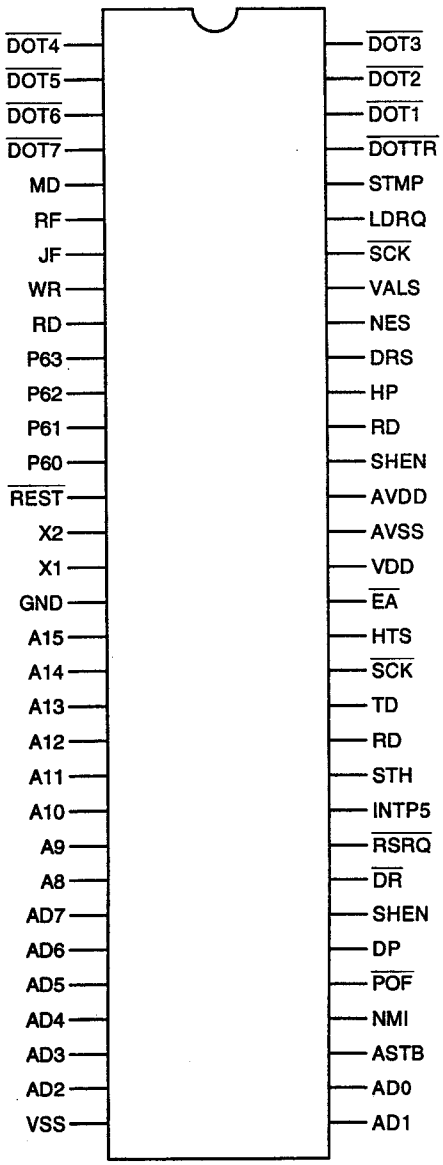


Fig. 1-1

2. Description of main LSI's

2-1. CPU (μPD78214)

1) Pin configuration



μPD78214 pin configuration

Fig. 2-1

2) Pin description

Pin No.	Terminal Mame	Signal name	In/Out	Active State	Description
1	P03	/DOT4	Out	L	Printer dot wire magnet 4
2	P04	/DOT5	Out	L	Printer dot wire magnet 5
3	P05	/DOT6	Out	L	Printer dot wire magnet 6
4	P06	/DOT7	Out	L	Printer dot wire magnet 7
5	P07	MD	Out	H	Printer moter drive
6	P67	/RF	Out	L	Receipt feed drawer 0
7	P66	/JF	Out	L	Jornal feed drawer 1
8	P65	/WR	Out	L	RAM/I0 wright enable
9	P64	/RD	Out	L	RAM/ROM/IO read enable
10	P63	ERC	Out	H	Event read cancel to ckdc5
11	P62	P62	Out		Memory bank signal 2
12	P61	P61	Out		Memory bank signal 1
13	P60	P60	Out		Memory bank signal 0
14	/RESET	/RESET	In	L	Reset signal to CPU
15	X2		In		Clock 12MHz
16	X3		In		Clock 12MHz
17	VSS	GND	In		Power supply
18	P57	A15	Out		Memory AB15
19	P56	A14	Out		Memory AB14
20	P55	A13	Out		Memory AB13
21	P54	A12	Out		Memory AB12
22	P53	A11	Out		Memory AB11
23	P52	A10	Out		Memory AB10
24	P51	A9	Out		Memory AB 9
25	P50	A8	Out		Memory AB 8
26	P47	AD7	In/Out		Memory AB7 DB7
27	P46	AD6	In/Out		Memory AB6 DB6
28	P45	AD5	In/Out		Memory AB5 DB5
29	P44	AD4	In/Out		Memory AB4 DB4
30	P43	AD3	In/Out		Memory AB3 DB3
31	P42	AD2	In/Out		Memory AB2 DB2
32	VSS	GND	In		Power supply
33	P41	AD1	In/Out		Memory AB1 DB1
34	P40	AD0	In/Out		Memory AB0 DB0
35	ASTB	ASTB	Out	L	Addres latch
36	NMI	GND			Not use
37	INTP0	/POF	In	↓	Power down
38	INTP1	DP	In	↓	Printer dot pulse
39	INTP2	SHEN	In	H	Shift enabl from CKDC5
40	INTP3	/DR	In	L	Data set ready from SIO
41	INTP4	/RSRQ	In	L	RS232C interupt
42	INTP5	GND	In		Not use
43	SI	STH	In		Serial input data (CKDC5→CPU)
44	RXD	RD	In		Serial input data (SIO→CPU)
45	TXD	TD	Out		Serial output data (CPU→SIO)
46	/SCK	/SCK	In		Serial clock (CKDC5→←CPU)
47	SO	IITS	Out		Serial output data (CPU→CKDC5)
48	/EA	VCC	In		Not use
49	VDD	VCC	In		Power supply
50	AVSS	GND	In		A/D conversion power supply
51	AVREF	VCC	In		A/D conversion reffrense voltage
52	P75	SHEN	In	H	Shift enable from CKDC5
53	P74	RP	In	L	Printer reset pulse
54	P73	HP	In	L	Printer home position pulse
55	P72	DS	In	H	Drawer open senser
56	P71	NES	In	H	Roll paper near end senser
57	P70	VALS	In	H	Validertion senser
58	P34	/SCK	Out	L	Serial clock (CKD5→←CPU)
59	P35	LDRQ	Out	H	load request (CPU→CKDC5)
60	P36	STMP	Out	H	Printer stamp
61	P37	/DOTTER	Out	L	Dot drive trigger
62	P00	/DOT1	Out	L	Printer dot wire magnet 1
63	P01	/DOT2	Out	L	Printer dot wire magnet 2
64	P02	/DOT3	Out	L	Printer dot wire magnet 3

2-2. CKDC5 (mPD75206)

1) CKDC5

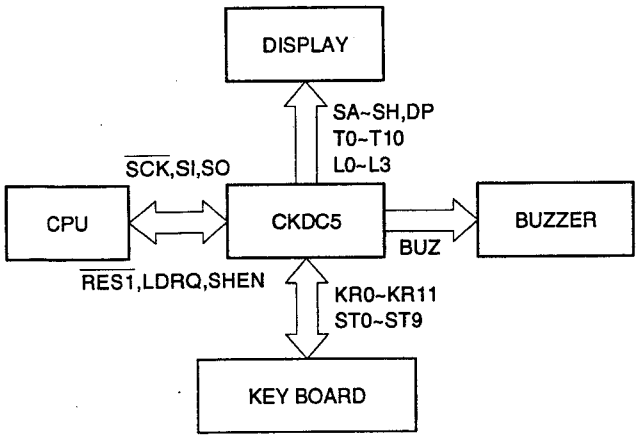


Fig. 2-2

2) Pin configuration

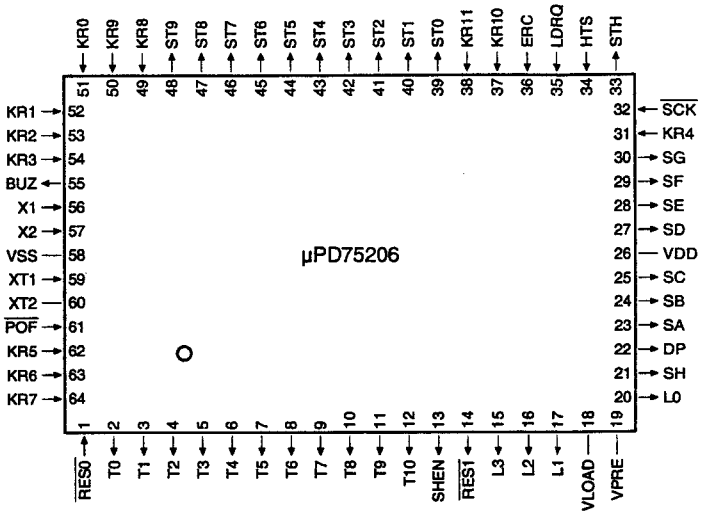


Fig. 2-3

3) Pin description

Pin No.	Pin name	CKDC5 name	I/O	Function	Active	Service interruption	Reset
1	$\overline{\text{RESET}}$	$\overline{\text{RES0}}$	Input	System reset input pin	Low	High input	Low input
2	T_0	T_0	Output	Digit output pin		High-Z	High-Z
3	T_1	T1					
4	T_2	T2					
5	T_3	T3					
6	T_4	T4					
7	T_5	T5					
8	T_6	T6					
9	T_7	T7					
10	T_8	T8					
11	T_9	T9					
12	T_{10}	T10	Output				
13	PH2	SHEN		Shift enable	High	Low output	
14	PH1	$\overline{\text{RES1}}$		CPU reset signal	Low	Low output	
15	PH0	L_3		For lighting LED			
16	S_{11}	L_2	Output				
17	S_{10}	L1					
18	V_{LOAD}	V_{LOAD}	—	Power pin of the pull-down resistor of the fluorescent lamp controller/driver			
19	V_{PRE}	V_{PRE}	—	Power pin of the pu-driver of the fluorescent lamp controller/driver			
20	S_9	L_0	Output	For lighting LED			
21	S_8	S_H		Segment output			
22	S_7	DP					
23	S_6	S_A					
24	S_5	SB					
25	S_4	SC					
26	VDD	VDD	—	Positive power pin			

Pin No.	Pin name	CKDC5 name	I/O	Function	Active	Service interruption	Reset
27	S_3	S_D	Output	Segment output		High-Z	High-Z
28	S_2	SE					
29	S_1	SF					
30	S_0	SG					
31	P00	KR_4	Input	Key return signal line	High	Input	Input
32	$\overline{SCK}$	$\overline{SCK}$	Input	Serial lock input pin			
33	SO	STH	OUtput	Serial data output pin			
34	SI	HTS	Input	Serial data input pin			
35	INTO	LDRQ	Input	Used for serial data byte division	High	Input	Input
36	P11	ERC	Input	Cancels the event read command.	High		
37	P12	KR_{10}	Input	Key return signal line (clerk switch)	High		
38	P13	KR_{11}		Key return signal line (mode switch)			
39	P20	ST_0	Output	Key scan signal line		Low output	Input
40	P21	ST_1					
41	P22	ST_2					
42	P23	ST_3		Key scan signal line, count clock, system clock			
43	P30	ST_4		Key scan signal line			
44	P31	ST_5					
45	P32	ST_6					
46	P33	ST_7					
47	P60	ST_8					
48	P61	ST_9					
49	P62	KR_8	Input	Key return signal line	High	Input	Input
50	P63	KR_9					
51	P40	KR_0					
52	P41	KR_1					
53	P42	KR_2					
54	P43	KR_3					
55	PP0	BUZ	Output	Buzzer output pin	High	High-Z	High-Z
56	X1	X1	Input	Main system clock oscillation crystal/ceramic connection pin			
57	X2	X2	—				
58	V_{SS}	V_{SS}	—	GND pin			
59	XT1	XT1	Input	Sub system clock oscillation crystal connection pin			
60	XT2	XT2	—				
61	P50	$\overline{POF}$	Input	POF signal input pin	Low	Input	Input
62	P51	KR_5	Input	Key return signal line	High	Input	Input
63	P52	KR_6					
64	P53	KR_7					

3. Clock generator

1) CPU (μPD78214)

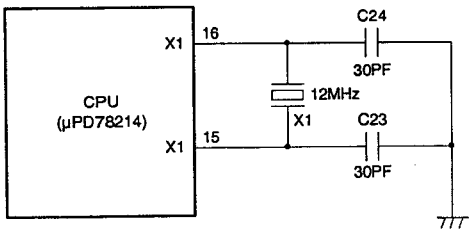


Fig. 3-1

Basic clock is supplied from a 12MHz ceramic oscillator.
The CPU contains an oscillation circuit from which the basic clock is internally driven. If the CPU was not operating properly, the signal does not appear on this line in most cases.

2) μPD75206CKDC5 oscillation circuit

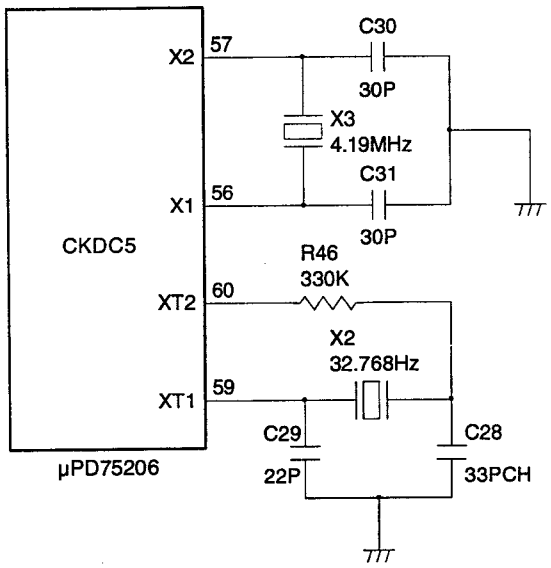


Fig. 3-2

Two oscillators are connected to the CKDC5.
The main clock X3 generates 4.19MHz which is used during power on.
When power is turned off, the CKDC5 goes into the standby mode and the main clock stops.
The sub-clock X2 generates 32.768Hz which is primarily used to update the internal RTC (real time clock). During the standby mode, it keeps oscillating to update the clock and monitoring the power recovery.

4. Reset (POFF) circuit

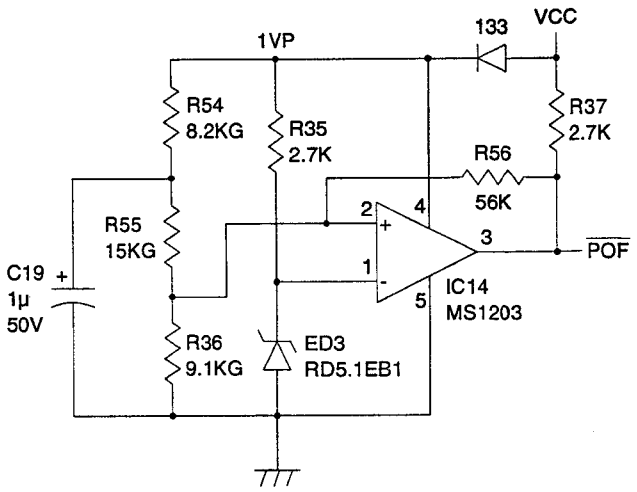


Fig. 4-1

In order to prevent memory loss at a time of power off and power supply failure of the ECR, the power supply condition is monitored at all times. When a power failure is met, the CPU suspends the execution of the current program and immediately executes the power-off program to save the data in the CPU registers and in the external S-RAM to prepare for the power-off situation.
This circuit monitors VCC (+5V) supply voltage.
The voltage at the (–) pin of the comparator M51203 is always maintained at 4.3V by means of the zener diode ZD3, while +5V supply voltage is divided through the resistors R37, R56, and R36, and is applied to the (+) pin. When normal +5V is in supply, 5.1V is supplied to the (+) pin, therefore, signal $\overline{POF}$ is at a high level. When +5V supply voltage decreases due to a power off or any other reason, the voltage at the (+) pin also decreases. When +5V supply voltage drops, the voltage at the (+) pin drops below +4.3V, which causes $\overline{POF}$ to go low, thus predicting the power-off situation.

5. Memory map

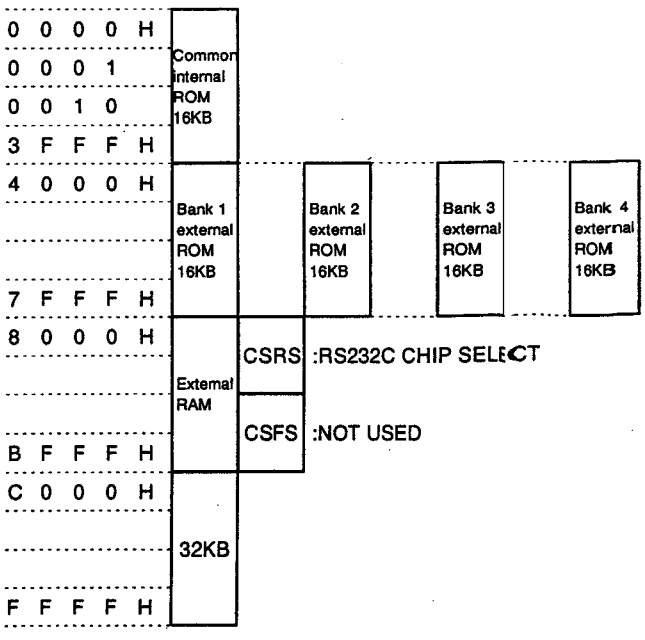

0 0 0 0 H
0 0 0 1
0 0 1 0
3 F F F H
Common internal ROM 16KB
4 0 0 0 H
7 F F F H
Bank 1 external ROM 16KB
Bank 2 external ROM 16KB
Bank 3 external ROM 16KB
Bank 4 external ROM 16KB
8 0 0 0 H
B F F F H
External RAM
CSRS :RS232C CHIP SELECT
CSFS :NOT USED
C 0 0 0 H
F F F F H
32KB

Fig. 5-1

6. PRINTER control circuit

1)Block diagram

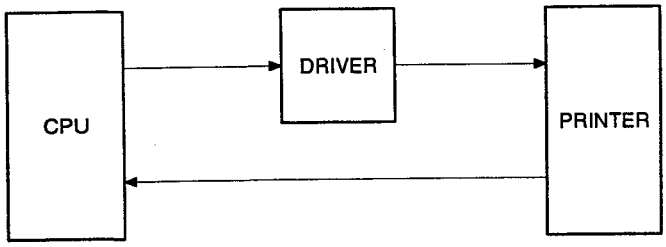


Fig. 6-1

2) General description of the printer controller

The M820 is used as the R/J printer. The printer mechanical timing control is made by the CPU.

3) Motor drive circuit

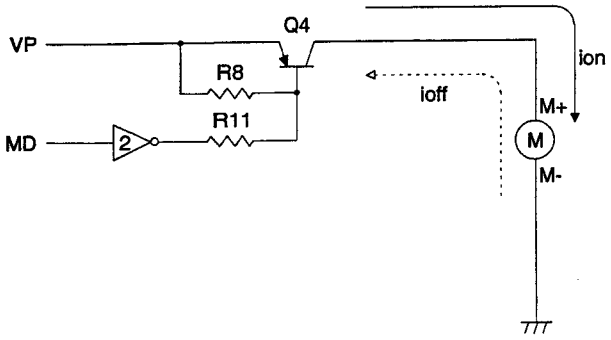


Fig. 6-2

A high on MD signal makes Q4 active so that current Ion flows through the motor to run. On the other hand, a low on MD signal turns off Q4 so that Ioff flows through the motor to stop the motor.

4) Dot wire and stamp drive control circuit

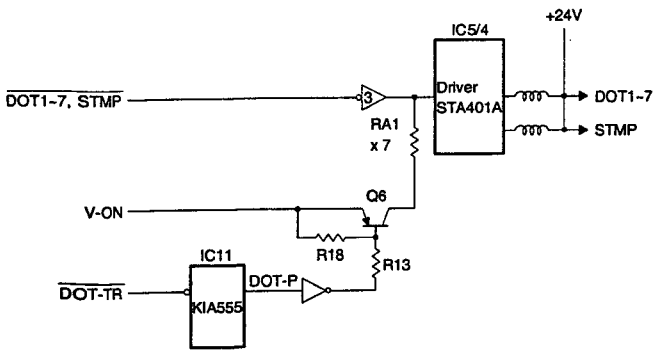


Fig. 6-3

Dot drive trigger signal DOT-TR is changed to DOT-P by IC11. When Q6 is turned on, the dot wire magnet is energized.

5) Sensor signal receive circuit

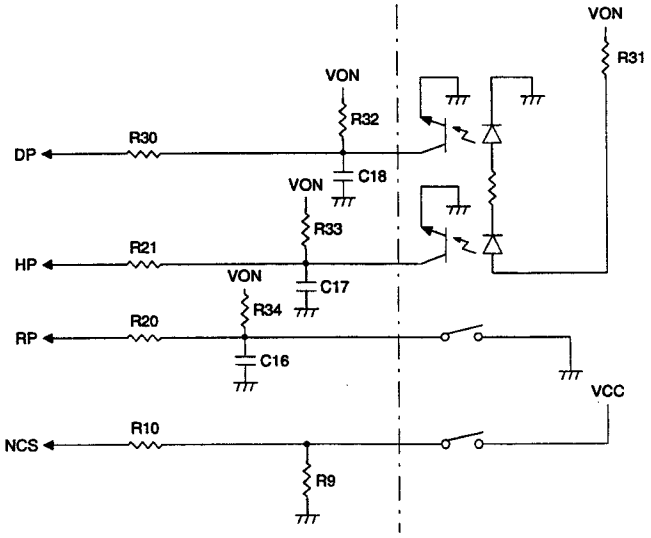


Fig. 6-4

DP (DOt Pulse), HP (Home Position pulse), RP (Reset Pulse), and NES (Near End Sensor) signals are outputted from the printer side and inputted to the CPU.

6) Paper feed circuit

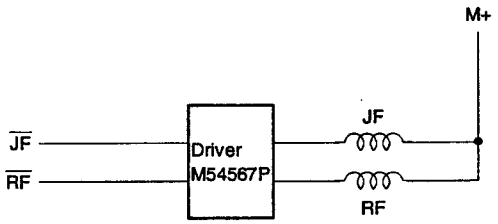


Fig. 6-5

paper feed signals are formed through the driver, and conduction is made by M+ generated from MD (Motor Drive) signal.

7. Drawer drive circuit

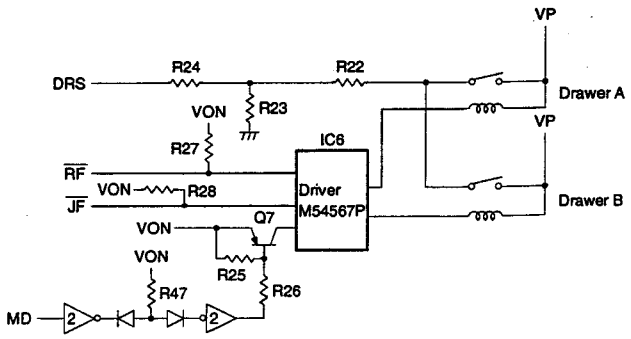


Fig. 7-1

When the printer motor is halted (MD signal: LOW), the paper feed signal (JF, RF) goes LOW and energizes the drawer magnet, opening the drawer.

8. Key, display, time buzzer controls

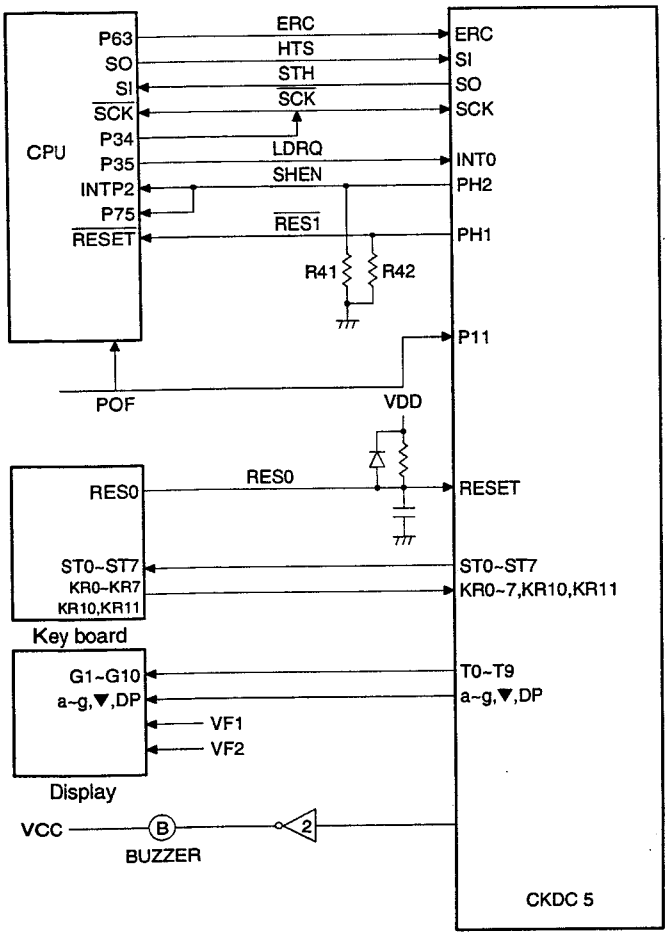


Fig. 8-1

1) Power on sequence

During service interruption, the CKDC5 senses POF within 500msec. When service interruption is cancelled by turning on the power, the CKDC5 cancels resetting of the CPU in the command mode. After initializing each port, the CPU reads the start condition (1 byte).

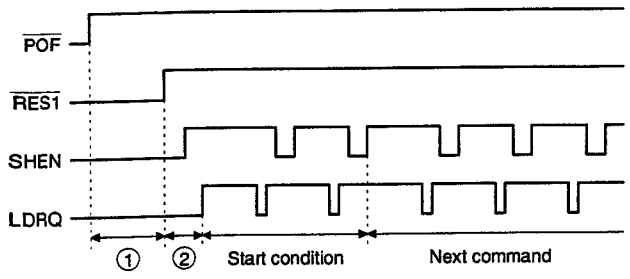


Fig. 8-2

After sampling POF High, the CKDC5 performs mode scan and key scan at ①, then cancels resetting of the CPU. After being cancelled, the CPU initializes each port at ② and reads the start condition.
After being cancelled, the CPU reads the start condition without fail to set the sift mode. If, however, the first starting is made in other than SRV mode after the CKDC5 resets the CPU without request from the CPU, the CKDC5 sets the start condition supposing that starting is made in SRV mode.

2) Power off sequence

When the CPU senses a service interruption, it performs necessary procedures for CPU stop. Then the CPU outputs a reset request to the CKDC5.

Reset request

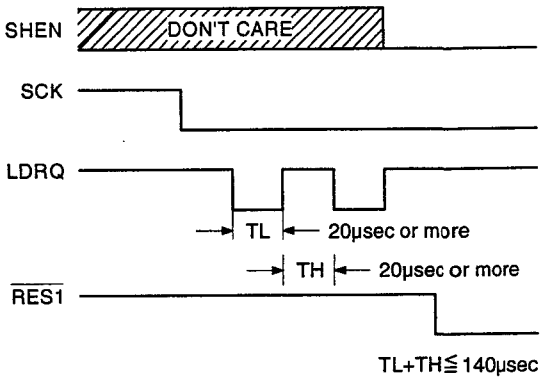


Fig. 8-3

When the CPU senses a service interruption or an error, it performs necessary procedure for CPU stop and issues reset request.
CPU procedures necessary for reset request

① All CPU interrupts are made DI.

② SCK is driven to low.

③ Keep LDRQ at LOW level for 20usec or more and drive it HIGH.

④ Loop ① to ③. During looping, access should not be made to external memory.

⑤ It should be within 140usec from rising of one LDRQ to rising of another.

When, however, the CKDC5 senses a service interruption at POF, it stops displaying. Service interruption procedure is performed after receiving reset request from the CPU. If reset request is not sent from the CPU within 100msec the service interruption procedure is started after 110 ±10msec to go into the stand-by mode.

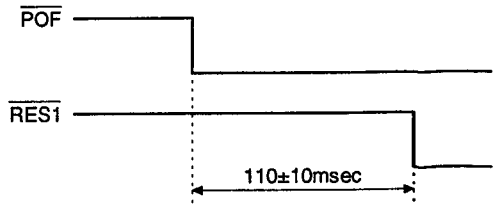


Fig. 8-4

3) Key and switch scanning

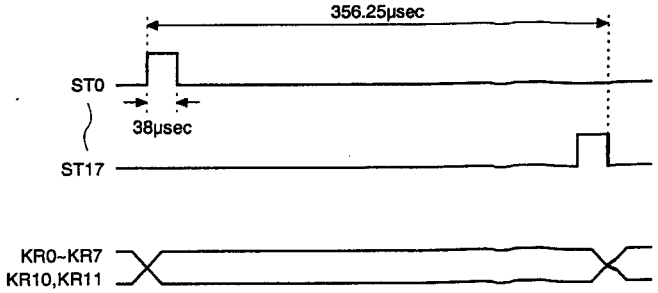


Fig. 8-5

As the strobe signal, 8 bits of ST0 - 8 are used.
KR0 - KR7 are used as the key return signal. KR10 is used as the return signal of the receipt on/off signal and the cashier switch. KR11 is used as the return signal of the journal feed key, the receipt feed key, and the mode switch.

4) DISPLAY CONTROL

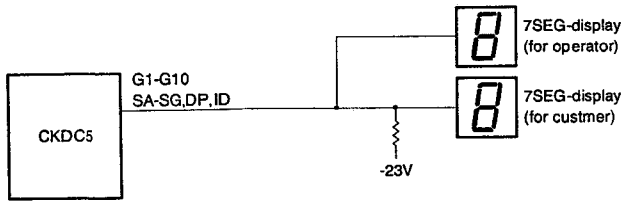


Fig. 8-6

CKDC5 directly drives the 7-segment display unit.
7 segment drive time chart
The display tube employs a grid blanking dynamic drive and operates with the following timing.

<7-segment display>

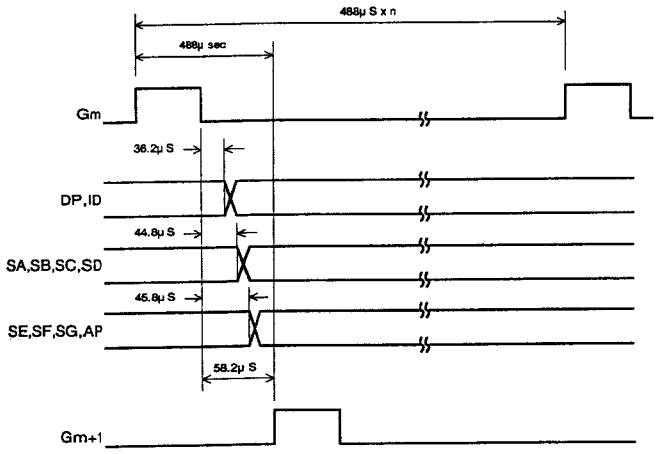


Fig. 8-7

9. Power supply circuit

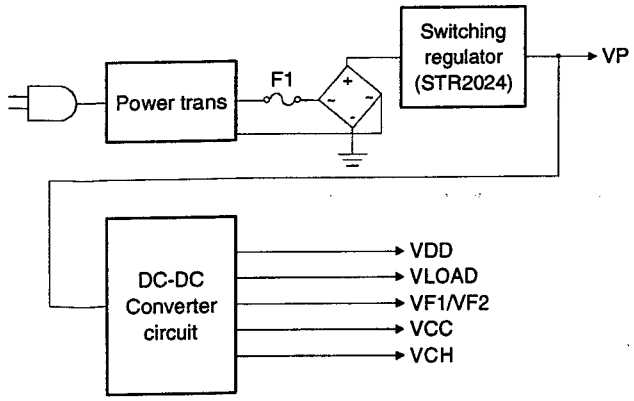


Fig. 9-1

VP: +24.8V
VDD: +5V
VLOAD: -23V
VF1/VF2: AC3.8V
VCH: +5.6V
VCC: +5V

10. Switching regulator circuit

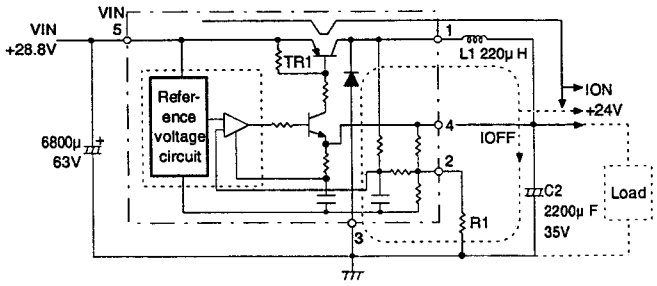


Fig. 10-1

By switching VIN (+28.8V) by the transistor TR1 within the STR2024, DC+26V supply is obtained through the LC network. Stable +24V is obtained by controlling on/off duty of TR1.

ION : Current when TR1 is on.
IOFF: Current when TR1 is off.

CHAPTER 5 TEST FUNCTION

1. Start of test function

The following key operation is required in the SRV1 mode to start the test.

XXXX → TL
Test command

Master reset is required when the system is to be started for the first time.

2. List of test commands

Test command	Test description
1	Clerk/Mode switch test
XXXX02*1	Keyboard test
3	Display/Buzzer test
5	Drawer open test (Standard drawer)
6	Drawer open test (Option drawer)
9	Print test
91	Near end sensor test
92	Validation print test
95	Dot pulse width adjustment
10	ROM test
11	Option ROM test
13	RAM test
14	Key position code test
12	SIO test
*1: XXXX: Sum check data for standard key layout ER-A430 →1628	

NOTE-1: Test message is printed on both the receipt and journal

NOTE-2: The contents of the totalizer and the preset values are not erased by the test.

3. Test function

1) Test No. 1: Clerk and mode switch test

① Key operation

1 → TL

Then, push the clerk and mode switches in the following order.

Mode switch operation	Display	
SRV	01	00
PGM2	01	01
PGM1	01	02
⏻		
OP X/Z	01	03
REG	01	04
MGR	01	05
X1/Z1	01	06
X2/Z2	01	07
SRV		0.00

② Description
As the clerk and mode switch position number is displayed check the number.

③ Termination
The test can be terminated when the mode switch is turned to the SRV side from other position.

Termination print and error 01E

Termination print at normal end 01

2) Test No. 2: Keyboard

① Key operation

X X X X 02 → TL
Sum check data
Test command

(1) Enter the test command in succession to the sum check data of the model.

Model	Sum check data (standard key layout)
ER-A430	1628*

*NOTE: Sum check data
The check sum is a decimal number obtained by converting the hard code hexadecimal total of all keys.
The TL keys are the exception.

(2) Next, push every key on the keyboard except for the receipt and journal keys.
When the TL key is pressed, the termination printout is immediately produced assuming that all keys have been pressed.
There is no order in which the keys have to be depressed.

[Keyboard position code of model vs. key to be pressed]
[All key position code]

↑ R	↑ J
02	03
00	01
05	04
07	06

0D	17	16
0C	0B	15
0E	0A	14
0F	10	18
	11	1A

21	2B	35	3F	49	4D
20	2A	34	3E	48	4C
1F	29	33	3D	47	4B
1E	28	32	3C	46	4A
22	2C	2D	36	40	41
19	23	2E	37	38	42
1B	24	25	2F	39	43

Fig. 1

[Standard keyboard]

21		35	3F	49	4D

↑ R	↑ J
02	03
00	01
05	04
07	06

0D	17	16
0C	0B	15
0E	0A	14
0F	10	18
	11	1A

1F	29	33
1E	28	32
22	2C	2D
19	23	2E
1B	24	25

47	4B
46	4A
40	41
42	
TL	

Fig. 2

② Description
Until the depression of the TL key, the sum of key position codes is compared with the sum check data, except for the TL key.

③ Termination
The test terminates with the depression of the [TL] key and the termination printout is produced.

Termination print at normal end 02

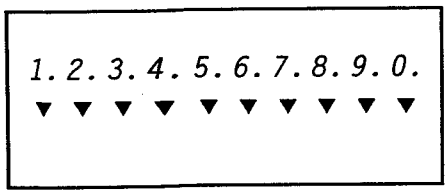
Termination print at error 02E

3) Test No. 3: Display buzzer test

① Key operation

3 → [TL]

② Description
Continuous beeps and the display are tested.



State of display

③ Termination
The beep stops with any key depression and the display returns to show 0.00

Termination print 03

4) Test No. 5 and 6: Drawer open test

① Key operation
ⓐ Standard drawer

5 → [TL]

ⓑ Option drawer

6 → [TL]

② Description
With this test, the drawer opens and its state is displayed in the following manner:

Drawer open → *O*

Drawer closed → *C*

"C" is displayed for the model that has no drawer sensor switch.

③ Termination
With depression of any key, the display shows 0.00

Termination print 05
06

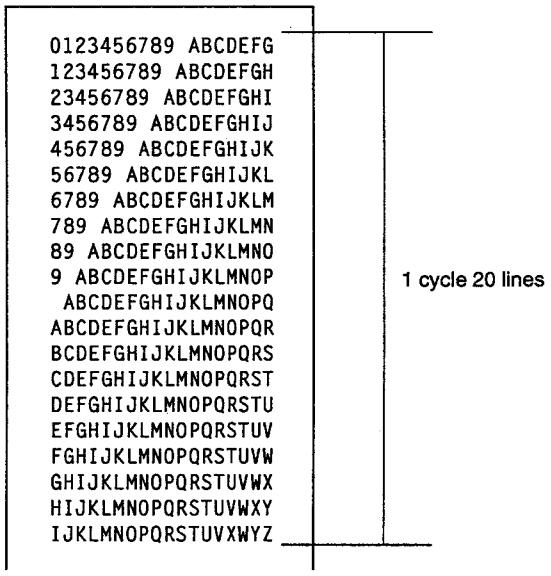
5) Test No. 6: Continuous print test

① Key operation

9 → [TL]

② Description
The continuous printing as shown below is performed.

③ Termination
After pressing any key, one-cycle of printing is performed before completing the operation.

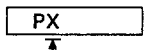


6) Test No. 91: Paper near end sensor test (Must have near end sensor installed)

① Key operation

91 → [TL]

② Description
State of the near end sensor is sensed and displayed.



X = 0: Journal side paper roll near end not detected
X = 1: Journal side paper roll rear end detected

③ Termination
With the depression of any key, the display shows 0.00.

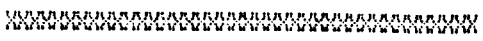
Termination print 91

7) Test No. 7: Validation print test

① Key operation

92 → [TL]

② Description
A letter "X" is printed on all 40 digits of 1 lines.



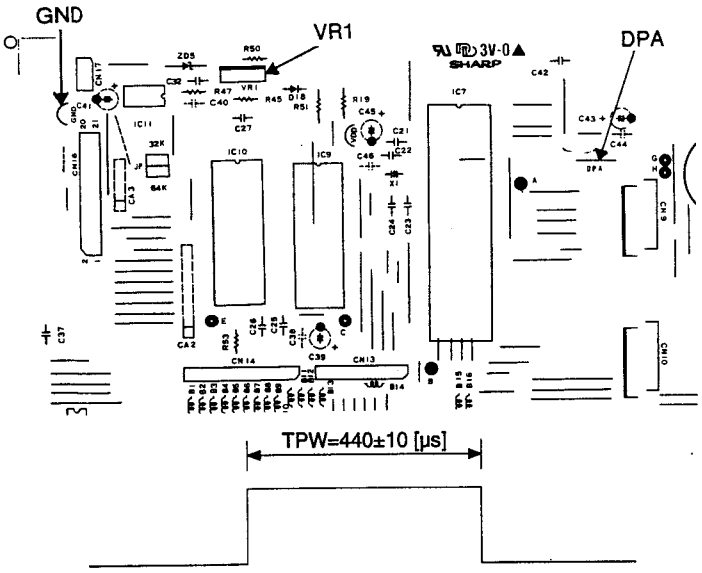
③ Termination
The test automatically terminates.

8) Test No. 8: Dot pulse width adjustment

① Key operation

12 → TL

② Description
Adjust pulse width of TPW at the test point DPA.
The pulse width of TPW can be adjusted using the 50K pot VR1.



③ With depression of any key.

9) Test No. 7: ROM test

① Key operation
CPU internal system ROM

10 → TL

CPU external application ROM or option ROM (ER-A43R1)

11 → TL

② Test results
Termination print

Normal end	At error
1 0	1 0 E
1 1	1 1 E

10) Test No. 8: RAM test

① Key operation

13 → TL

② Test results

Termination print

At normal end →	1 3
At error →	1 3 E

11) Test No. 9: Key position code read test

① Key operation

14 → TL

② Description
Key position of a key on the keyboard is displayed when any key is pressed. (Hardware key contacts code. A hexadecimal number is converted into a decimal number before displayed.)
The receipt and journal keys only feed paper without displaying, and the TL key is used to terminate the test.
For key position codes displayed, refer to Fig. 1 to 3.

③ Termination
Push the TL key.

Termination print 14

12) SIO test

① Key operation

12 → TL

② Description
Execute SIO handler line connect command, check the connection state, and executes the loop back test command (9600 baud).

③ Termination

Termination print at normal end 12

Termination print at error 12E X

X = 1: ER-DR level error
X = 2: Data mis-match error
X = 3: Time out error

CHAPTER 6. DOWN LOAD FUNCTION

1. General

RAM data can be transmitted by the following two methods.
Save the data before servicing as follows:

① ECR ⟷ ECR
- Cable: ER-A5CB

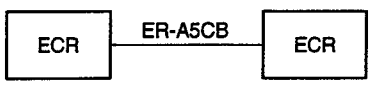


Fig. 1-1

② ECR ⟷ ER-02FD
- Cable: Cable (QCNW-7578RCZZ) packed with the ER-02FD

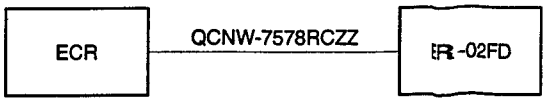


Fig. 1-2

2. SIO interface specification

1) Operation: Simplex
2) Line configuration: Direct connect
3) Data rate: 9600, 4800, 2400, 1200, 300BPS (Selected by SRV JOB#903-A)
4) Sync mode: Asynchronous
5) Checking: Vertical parity (odd)
6) Code: 7 bits (ASCII)
7) Bit sequence: LSB first
8) Line level: TTL level
9) Data forma:

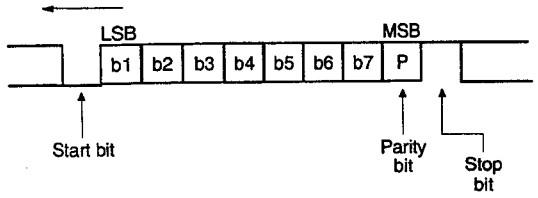


Fig. 2-1

3. Location of connector pins

① ER-A5CB

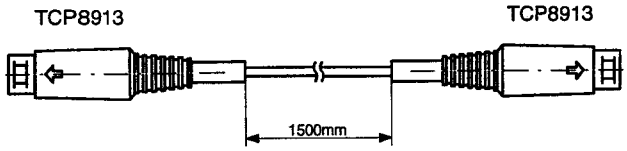


Fig. 3-1

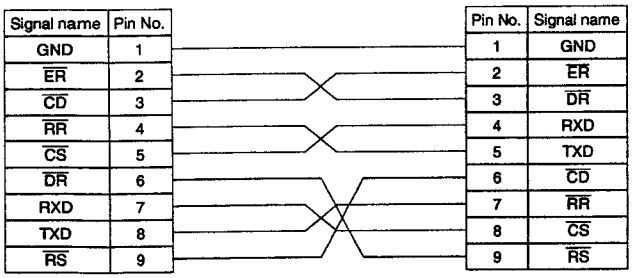


Fig. 3-2

② QCNW-7578RCZZ

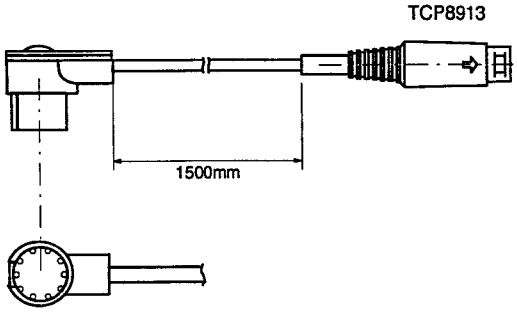


Fig. 3-3

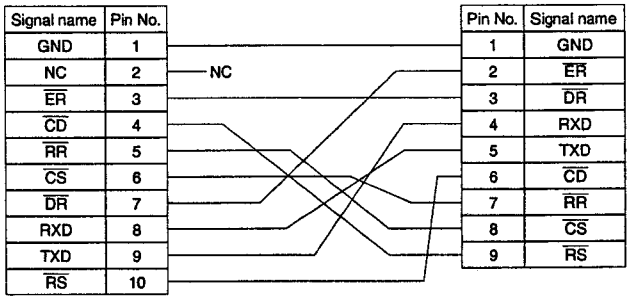


Fig. 3-4

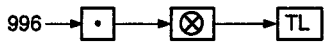
Interfacing signals

Pin No.	Signal name	In/Out	On level	Description
1	GND	—	—	Signal ground
2	ER	Out	Low	Equipment ready
3	DR	In	Low	Data set ready
4	RXD	In	High: MARK Low: SPACE	Receive data
5	TXD	Out	High: MARK Low: SPACE	Transmit data
6	CD	In	Low	Carrier detect
7	RR	Out	Low	Ready to receive
8	CS	In	Low	Clear to send
9	RS	Out	Low	Request to send

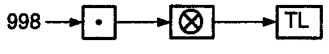
4. Application specification

The following service (SRV) modes are available for the serial data transfer of the ER-A430.

1) Data transmit (Source side)

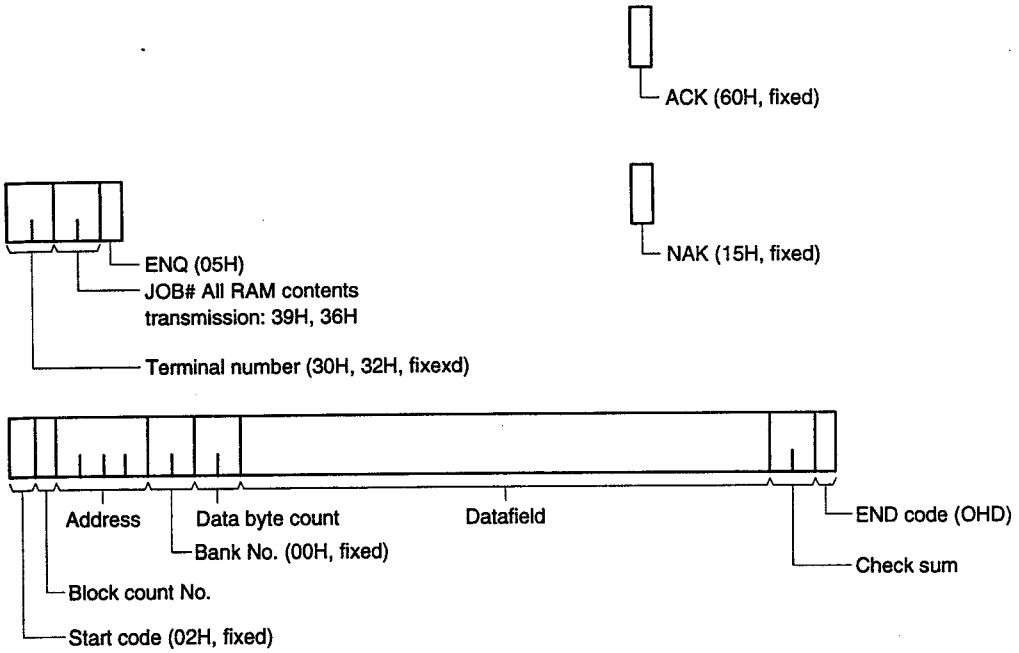


2) Data receive (Target)



5. Data format

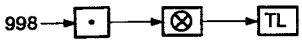
One byte of the RAM data to be transmitted is divided into high order four bits and low order four bits and converted into ASCII code or BCD.
Then, they are transmitted in the following format as memory image.
Status is transmitted as a block.



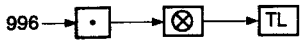
- Start code: STX 02H, fixed
- Block count No.: Ring count method (30H → 31H → 32H ..... 39H)
- Address: Represents the memory top addewss of the data to be transmitted in the ASCII code.
- Data byte count: Indicates the number of effective data within data field.
- Data fild: Memory contents are converted into ASCII code and sent. Fixed to 128 bytes.
- Check sum
- End code: CR (0DH, fixed)

6. Operational method

1) To prepare an ER-A430 to receive data from another ER-A430 or the ER-02FD, (the memory size of the receiving unit must the same as or greater than the sending unit.)
2) Master reset the receiving ER-A430.
3) Match the baud rate of the transmitter with the receiver using JOB#903 in the SRV mode.
4) Connect loader cable (QCNW-7578RCZZ or ER-A5CB) between ER-A430s.
5) Set the receiving ER-A430 ready to receive.



6) Start the sending ER-A430.



7) Transmission status.
   Description of error status (Print out)
   SEND ERROR
   RECEIVE ERROR
8) Service reset the receiving ER-A430.

7. Saving/Loading of data to/From the FD unit Configuration

1) Turn off the power switch of the ER-02FD, and set the DIP switches of the FD unit as follows:

ER-02FD (The ER-01FD functions of the ER-02FD are used.)

DS-1								DS-2			
1	2	3	4	5	6	7	8	1	2	3	4
OFF	ON	OFF	ON	ON	OFF	OFF	OFF	X	ON	OFF	OFF

Data rate

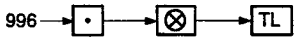
4	6	Rate [bps]
ON	OFF	9600
OFF	ON	4800
ON	ON	2400

Disk format
CCP/M: OFF
PC-DOS: ON

2) Connect the QCNW-7578RCZZ cable.

Saving data

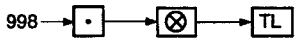
1) Turn on the power switch and insert a floppy disk which has been formatted.
2) Start the SEND JOB on the ECR side as follows:



3) Data transmission is started and the green lamp on the ER-02FD blinks.

Loading data

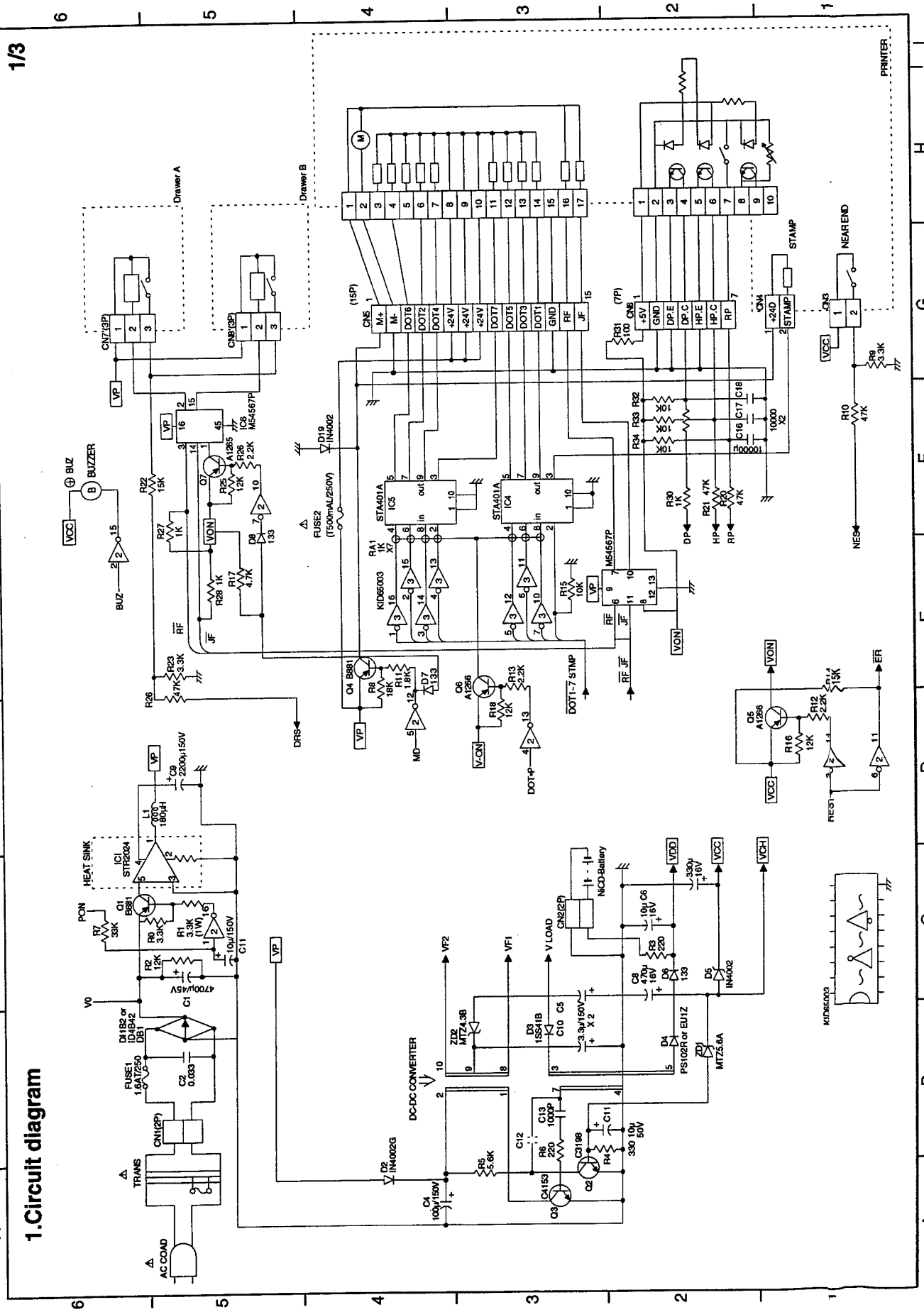
1) Turn on the power switch and insert the floppy disk which stores the data.
2) Start the RECEIVE JOB on the ECR side as follows:

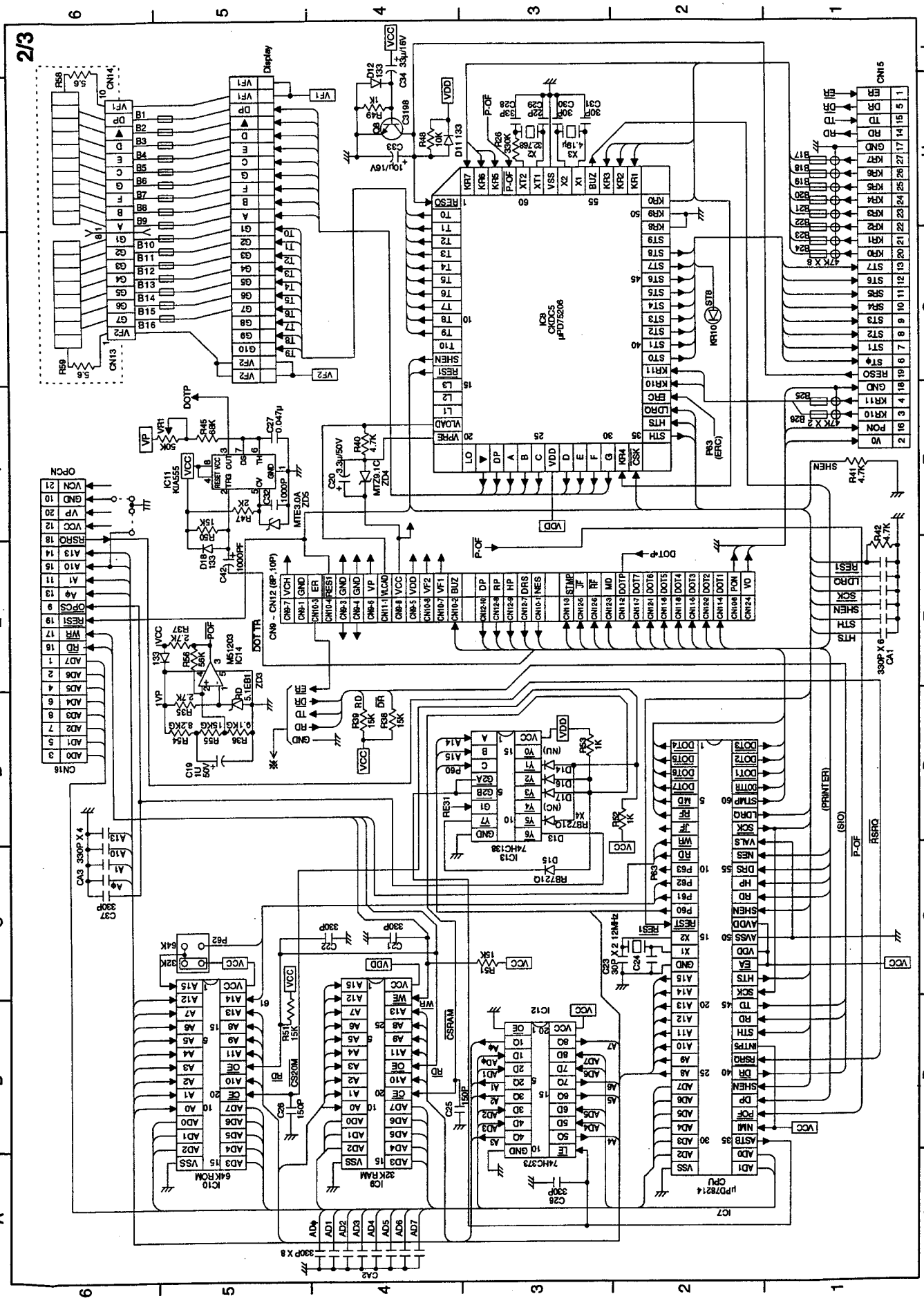


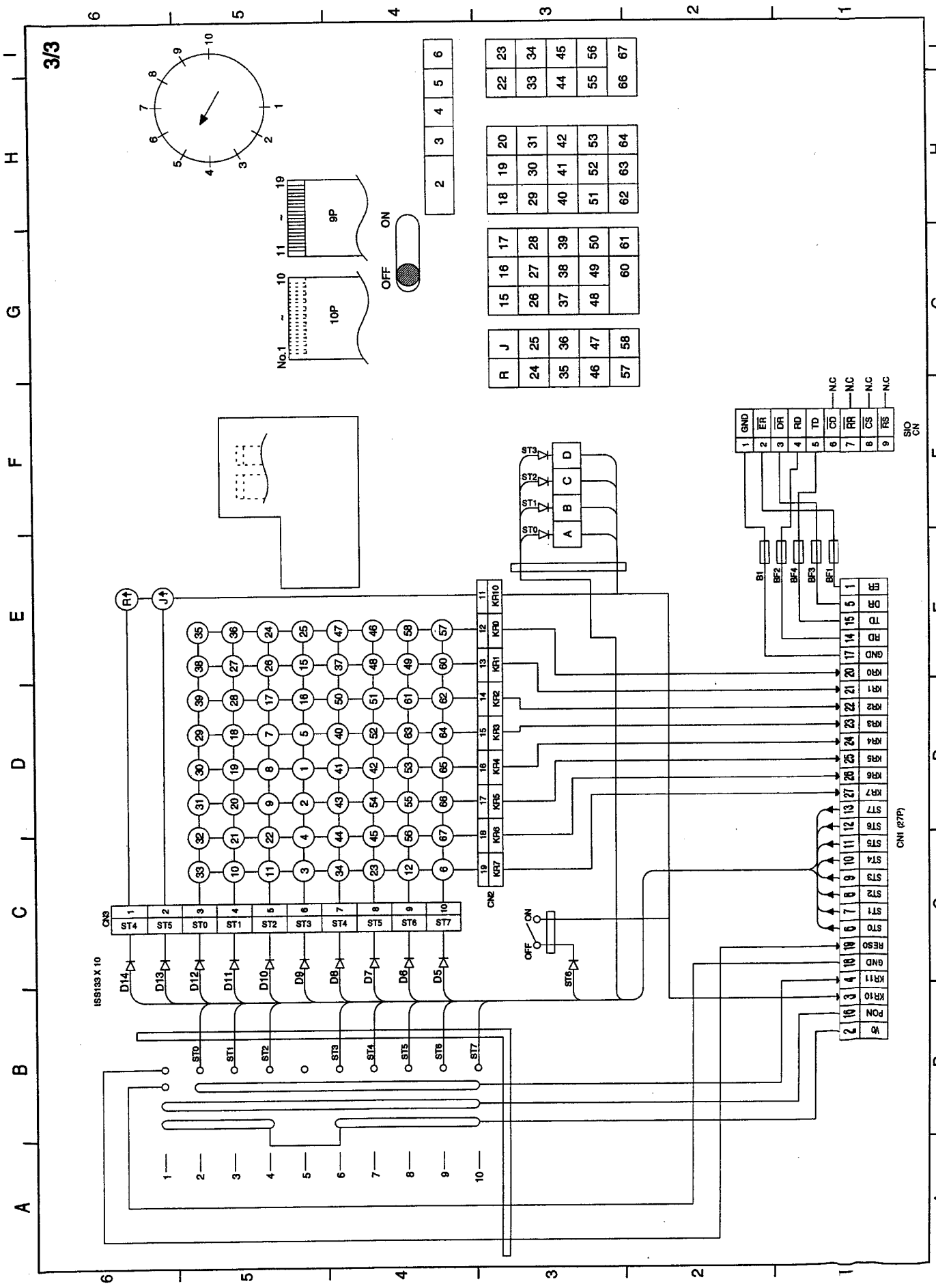
3) Press the [SEND] key on the FD unit.
4) Data transmission is started and the Green lamp on the ER-02FD blinks.
5) Service reset the ECR.

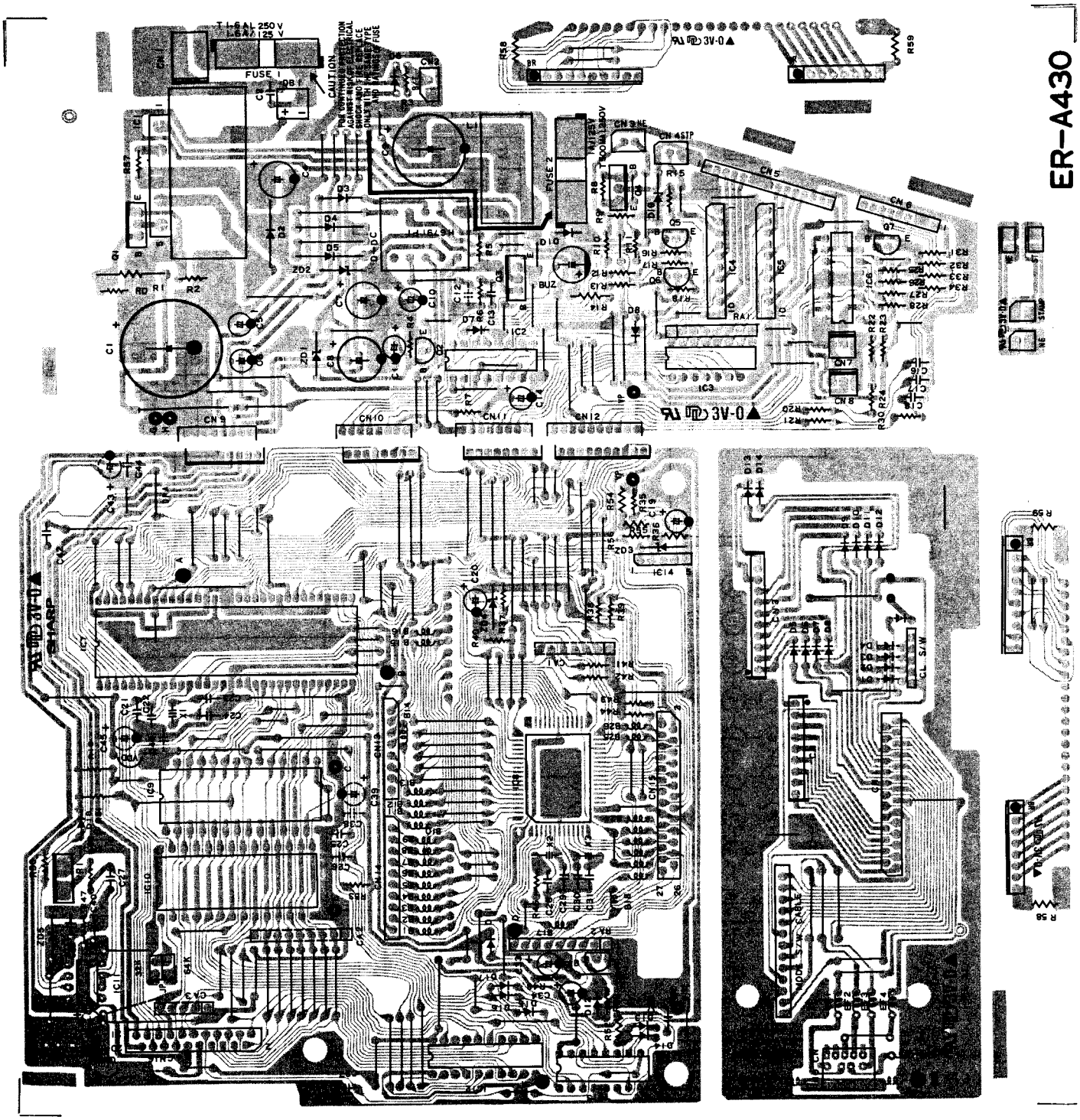
CHAPTER 7. CIRCUIT DIAGRAM & PWB LAYOUT

1.Circuit diagram




2/3
IC9
CKOC5
μPD75206
IC7
μPD78214
CPU
IC10
64K ROM
IC9
32K RAM
IC12
74HC373
IC13
74HC138
IC14
M51203
IC11
KIA555
CN9 - CN12 (8P, 10P)
CN13
CN14
CN15
CN16
OPCN
Display
(PRINTER)
(SIO)
P-OF
ASRQ
SHEN
DOTP
DOTTR
CSRAM
CSOM
RESI
STB
VCC
VDD
GND


3/3
No.1 ~ 10
10P
11 ~ 19
9P
ON
OFF
CN1 (27P)
CN2
CN3
SIO CN
ISS133 X 10
N.C



2. PWB layout

SHARP PARTS GUIDE

MODEL ER-A430

PRINTER: DP630-S
(for KA, KB, TR, TS)

CONTENTS

1 Exteriors
2 Keyboard unit
3 Packing material & Accessories
4 Drawer box unit (SK423 type)
5 Main PWB unit
6 Key i/F PWB unit
7 Pop-up PWB unit
8 Relay PWB unit
9 Articles for consumption
10 Service route options & Service tools
11 AC cord
■ Index

Because parts marked with "⚠" is indispensable for the machine safety maintenance and operation, it must be repalced with the parts specific to the product specification.

Table of destinations

SELECTION CODE	COUNTRIES
U	U. S. A., Guam
A	Canada
TS	Germany
TQ	SEEG territory other than Germany (Stamp : English)
TR	SEEG territory other than Germany (Stamp : Spanish)
KB	U. Kingdom
KA	Australia

SELECTION CODE	COUNTRIES
K	Korea

SELECTION CODE	COUNTRIES
RA1	Morocco, Algeria, Tunisia, West Africa
RA2	Chile, Uruguay, Peru, Argentina, Paraguay
RA5	Sri Lanka

SELECTION CODE	COUNTRIES
SB	Saudi Arabia (127V area)
SBA	Saudi Arabia (220V area)
SC	Taiwan
SD	Venezuela
SE	Hong Kong
SG	Lebanon, Syria, Greece, Pakistan, Iran, Egypt, Thailand, Iraq, Mauritius, Seychelles, Tahiti, Jordan, Sudan, Turkey
SH	South Africa (U. S. A. version)
SHE	South Africa (Europe version)
SJ	Philippines (Europe version)
SJ2	Philippines (U. S. A. version)
SM	Kuwait, Qatar, Oman, UAE, Malta, Bahrain
SMT	Nigeria, Yemen, Kenya

SELECTION CODE	COUNTRIES
RB3	Indonesia
RB4	
RB5	Cyprus
RB6	Panama
RB7	Barbados
RB8	Malaysia (U. S. A. version)

SELECTION CODE	COUNTRIES
RC1	Malaysia (Europe version)
RC2	Singapore
RC5	Dominican Republic, Ecuador

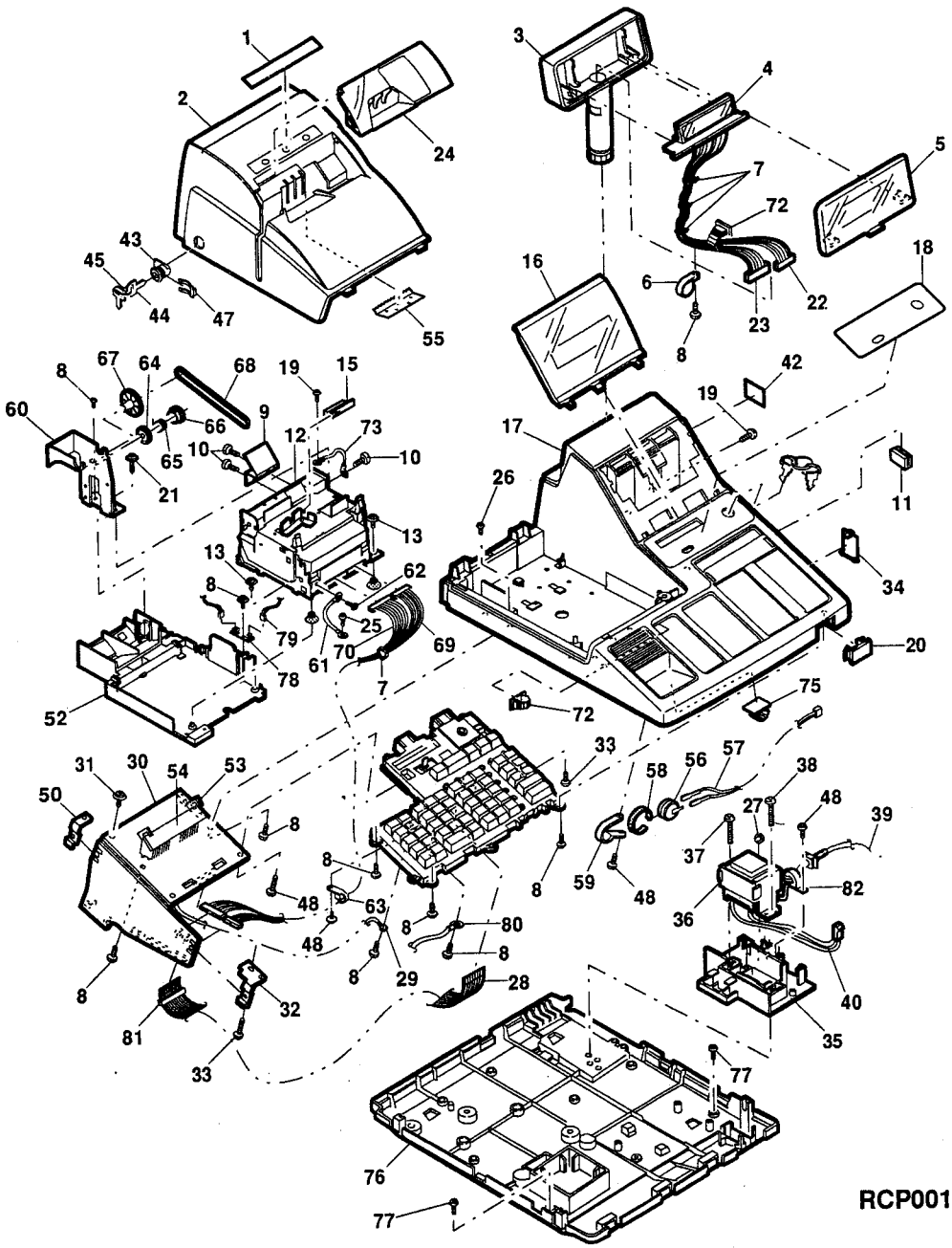
ERA430V

1 Exteriors

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	HBDGD68888BHSA	AE	N	D	Model badge	
2	GCOVB7059BHZZ	AV	N	D	Printer cover	
3	GCABB7084BHZA	AP	N	D	Pop up cabinet	
4	CPWBF7320BH01	BF		E	Pop up PWB unit	
5	PFiLW6889BHSF	AP	N	D	Pop up filter	
6	LHLDW0006SCZZ	AB		C	Wire holder (NK−3N)	
7	LBNDJ2003SCZZ	AA		C	Band (large)	
8	XUBSD30P08000	AA		C	Screw (3×8)	
9	CANGG7500BH01	AU	N	C	Paper support unit	
10	XBPSD30P04000	AA		C	Screw (3×4)	
11	GCOVH7034BHZZ	AE		D	Battery cover	
12	Ki−OB6763RCZZ	BW	N	E	Printer unit(DP−630S)	
13	LX−BZ1085CCZZ	AA		C	Screw	
15	PSTM−6790RCZZ	AS		C	Stamp	[KA,KB,TR]
	PSTM−6789RCZZ	AT		C	Stamp	[TS]
16	PFiLW6922BHSF	AS	N	D	Display filter	
17	GCABB7165BHZZ	BD	N	D	Top cabinet	
18	HDECP6826BHSF	AN	N	D	Deco panel	
19	XBBSC30P08000	AA		C	Screw (3×8)	
20	GFTAB6754BHZZ	AF		D	Lid of clerk	
21	XHBSD30P15000	AA		C	Screw (M3×15)	[KA,KB]
	XHBSD30P25000	AA		C	Screw (3×25)	[TQ,TS]
22	QCNCW6918BH10	AR		C	Connector (10P)(Pop up cable)	
23	QCNCW6918BH08	AP		C	Connector (8P)(Pop up cable)	
24	PFiLW6930BHZZ	AK	N	D	Journal filter	
25	XHBSD30P18000	AA		C	Screw (3×18)	[KA,KB]
	XHBSD30P25000	AA		C	Screw (3×25)	[TQ,TS]
26	LX−BZ6754RCZZ	AA		C	Screw (M3×8)	[KA,KB]
	LX−BZ6781BHZZ	AB		C	Screw (M3×16)	[TQ,TS]
27	XNESD30−24000	AA		C	Nut (3NS)	
28	QCNW−7594RCZZ	AK		C	FPC (27pin)	
29	QCNW−7607BHZZ	AF		C	Earth wire (PWB to keyboard)	
30	CPWBF7318BH02	CE	N	E	Main PWB unit	
31	XBPSD30P06KS0	AA		C	Screw (M3×6)	
32	LANGK7410BHZZ	AM		C	PWB angle	
33	XUBSD30P12000	AA		C	Screw (3×12)	
34	GCOVB7058BHZZ	AD	N	D	Sio cover	
35	GCOVH7035BHZZ	AS		D	Trans cover	
⚠ 36	RTRNP6857BHZZ	BC	N	B	Power transformer (220V)	[TQ,TS]
⚠	RTRNP6858BHZZ	BC	N	B	Power transformer (240V)	[KA,KB]
37	XJPSD30P16X00	AB		C	Screw (3×16X)	
38	LX−BZ6755RCZZ	AA		C	Screw (3×25)	[KA,KB]
	LX−BZ6780BHZZ	AB		C	Screw (M3×35)	[TQ,TS]
⚠	QACCL1018CCZZ	AR		B	AC cord (7.5A)	[KA]
⚠ 39	QCNW−1035CCZZ	AL		B	AC cord	[KB]
⚠	QPLGA0006QCZZ	AQ		C	Plug (3A 250V)	[KB]
⚠	QACCE3120QCN5	AL		B	AC cord (250V 2.5A)	[TQ,TS]
40	QCNW−7451BHZZ	AG		C	Trans cable (2pin)	
42	TCAUS6668RCZZ	AA		D	Caution label	
43	LKGiW7355BHZZ	AX	N	B	Lock(body)	
44	LKGiM7356BHZZ	AK	N	B	Printer cover lock key	
45	PRNGT6639BHZZ	AB	N	C	Key ring	
47	MSPRK6730BHZZ	AC	N	C	Lock spring	
48	XJPSD30P12X00	AB		C	Screw (3×12X)	
50	LANGK7499BHZZ	AF		C	PWB angle	
52	LHLDZ6816BHZZ	AR	N	C	Printer holder	
53	LHLDW6802BHZZ	AD		C	Holder	
54	VVK10MT20GY−1	AW		B	Display tube	
55	PCUT−6647BHZZ	AE	N	C	Paper cutter	
56	UBATN6639RCZZ	AS		B	Battery (170MA 2.4V)	
57	QCNW−7622BHZZ	AG		C	Connector (2P)	
58	PCUSG7017BHZZ	AC		C	Battery cushion	
59	LBNDJ6636BHZZ	AD	N	C	Battery band	
60	LFRM−6685BHZZ	AZ	N	C	Roller frame	
61	QCNW−7609BHZZ	AF		C	Earth wire	
62	XBPSD40P04000	AA		C	Screw (4×4)	
63	LBNDJ6637BHZZ	AF		C	Clamp tie	
64	NGERH6639RCZZ	AC		C	Idle gear	
65	MSPRK6729RCZZ	AC		C	Clutch spring	
66	NGERH6638RCZZ	AC		C	Driver gear	
67	NGERH6637RCZZ	AD		C	Pulley gear	
68	NBLTK6629RCZZ	AD		C	Belt	
69	QCNW−7605RCZZ	AH		C	Printer connector (7pin)	
70	QCNW−7604RCZZ	AN		C	Printer connector (15pin)	
72	LHLDW6820BHZZ	AE	N	C	Quick clamp	
73	QCNW−7609BH01	AF		C	Earth wire	
75	LHLDW6821BHZZ	AD	N	C	Quick clamp	
76	GCABA7149BHZZ	BC		D	Bottom cabinet	[TQ,TS]
77	XHPSD30P08000	AA		C	Screw (3×8)	[TQ,TS]
78	CPWBF7330BH01	AG	N	E	Relay PWB unit	

1 Exteriors

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
79	QCNW-7636BHZZ	AL		C	Relay cable (2Pin)
80	QCNW-7607BHZZ	AF		C	GND wire
81	RCORF5029SCZZ	AL		C	Core (SSC-452-12H)
82	RCORF7001SCZZ	AL		C	Core (ESD-R-25DR)
101	DUNT-1817BHZZ	AY	N	E	Lock key unit (Include No.43~45,47)



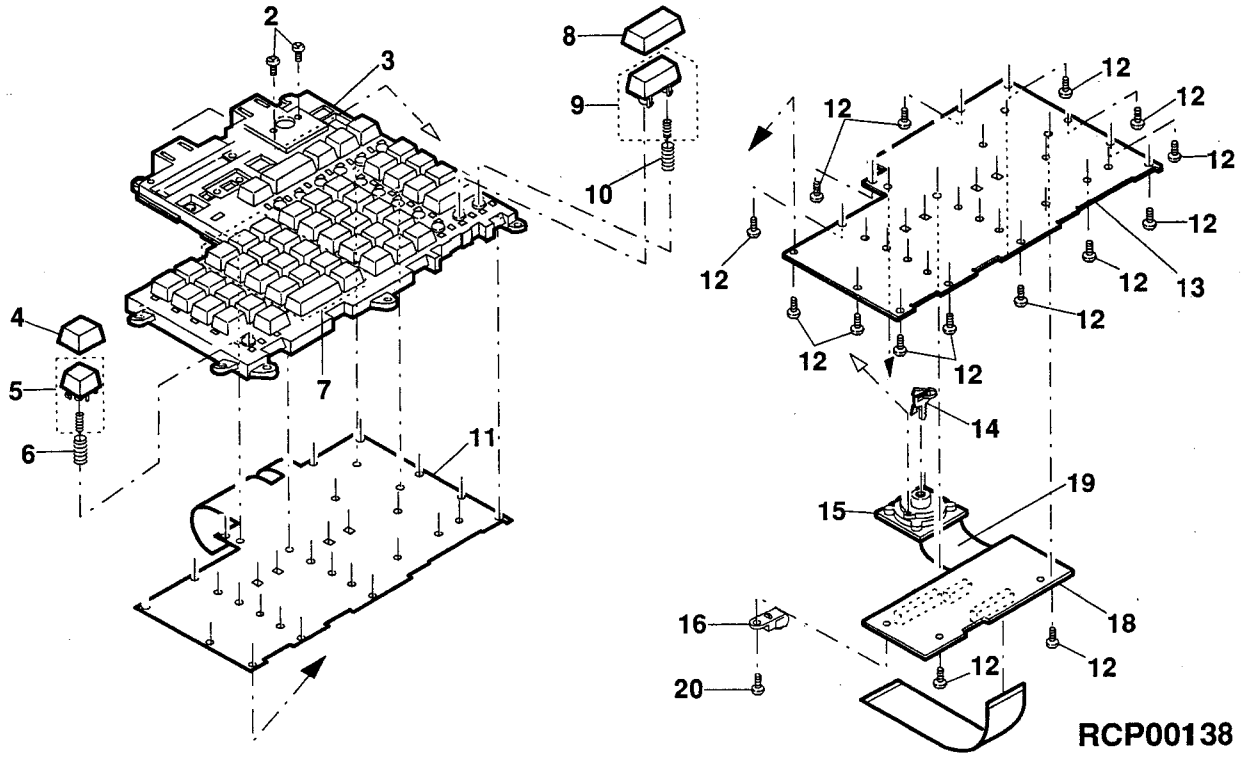
2 Keyboard unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
2	XUPSD30P06000	AA		C	Screw (3×6)
3	0EMWK4653021 0	AY		C	Housing (TWK4653−02−010)
4	0EMKT8002000 1	AC		C	Key cap (1×1) (TKT8002−00−002)
5	0EMWK4646651 0	AC		C	Key top (1×1) (TWK4646−65−010)
6	0EMWK4553112 0	AC		C	Spring (1×1) (TWK4553−11−020)
7	0EMWK4646500 2	AT		C	Key top ass'y (TWK4646−50−002)
8	0EMKT8022000 1	AE		C	Key cap (1×2) (TKT8022−00−002)
9	0EMWK4646661 0	AE		C	Key top (1×2) (TWK4646−66−010)
10	0EMWK4553121 0	AC		C	Spring (1×2) (TWK4553−12−010)
11	CSHEP6802BH0 1	AZ	N	C	Key sheet unit
12	XUBSD30P08000	AA		C	Screw (3×8)
13	0EMWK4653051 0	AU		C	Plate (TWK4653−05−010)
14	LKGiM7111RCZZ	AG		B	Operator key (OP)
	LKGiM7110RCZZ	AG		B	Master key (MA)
	LKGiM7129RCZZ	AE		B	Sub master key (SM)
15	0DUBŌDY000002	AP		B	Mode switch key (body)
16	0EMWK4653121 0	AC		C	Cable holder (TWK4653−12−010)
18	CPWBF7319BH02	BC	N	E	Key I/F PWB unit
19	QCNW−7608BHZZ	AG		C	Mode switch cable (13pin)
20	XUPSD30P10000	AA		C	Screw (3×10)
101	TLABH6925BHZZ	AN	N	D	Key label
501	DUNTK1812BHZZ	BR	N	E	Keyboard unit (Include №3~10,13,16)

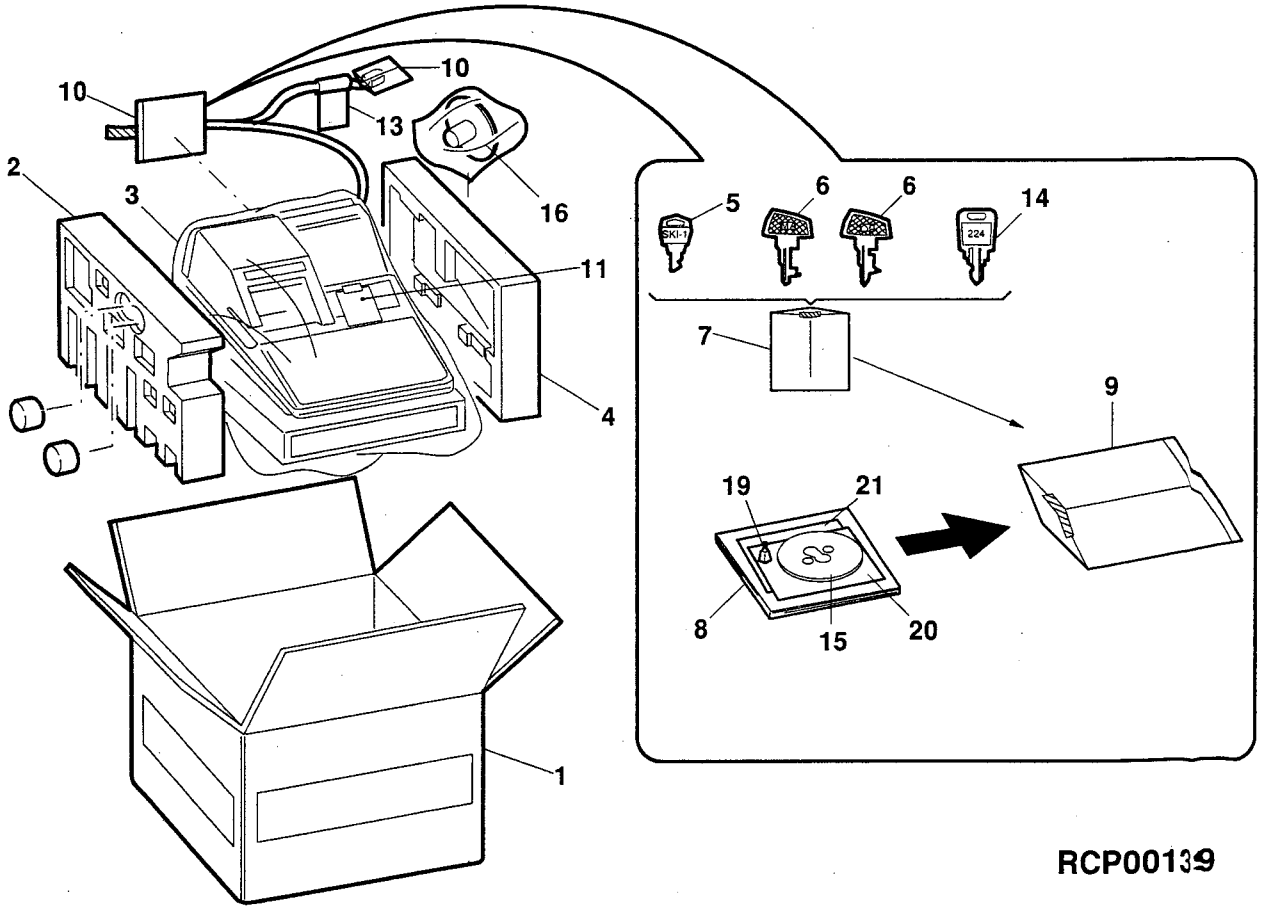
3 Packing material & Accessories

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	SPAKC6215BHZZ	AZ	N	D	Packing case
2	SPAKA7837RCZZ	AM		D	Packing cushion (Left)
3	PSHEP6681RCZZ	AC		D	Sheet
4	SPAKA7836RCZZ	AM		D	Packing cushion (Right)
5	LKGiM7331BHZZ	AE		B	Drawer key
6	LKGiM7111RCZZ	AG		B	Operator key (OP)
	LKGiM7110RCZZ	AG		B	Master key (MA)
	LKGiM7129RCZZ	AE		B	Sub master key (SM)
7	SSAKA3012CCZZ	AA		D	Vinyl bag (80×120mm)
8	TiNSE7261BHZZ	AT	N	D	Instruction book
	TiNSF7262BHZZ	AT	N	D	Instruction book [TQ,TS]
	TiNSS7264BHZZ	AT	N	D	Instruction book [TQ,TS]
	TiNSG7263BHZZ	AT	N	D	Instruction book [TQ,TS]
9	SSAKH3015CCZZ	AA		D	Vinyl bag (260×360mm)
10	SSAKA5004CCZZ	AA		D	Vinyl bag (100×300mm)
11	TCADH6654RCZZ	AB		D	Caution card
13	TCAUS1052CCZZ	AB		D	Caution label for AC cord [KB]
14	LKGiM7356BHZZ	AK	N	B	Printer cover lock key
15	PGiDH6710BHZZ	AF		C	Printer guide wheel
16	UREL−6627RCZZ	AK		C	Print wheel unit
19	UiNK−1001CCZZ	AK		S	Ink for stamp (5cc)
20	TCADZ2001BHZA	AM	N	D	Card [KA]
21	TGANE1001BHZA	AF	N	D	Guaranty [KA]
	TiNSN7240BHZZ	AF		D	Instruction book(buttery adjust) [TQ]
101	UBNDA1008CCZZ	AA		C	AC cord band (120mm)

2 Keyboard unit



3 Packing material & Accessories

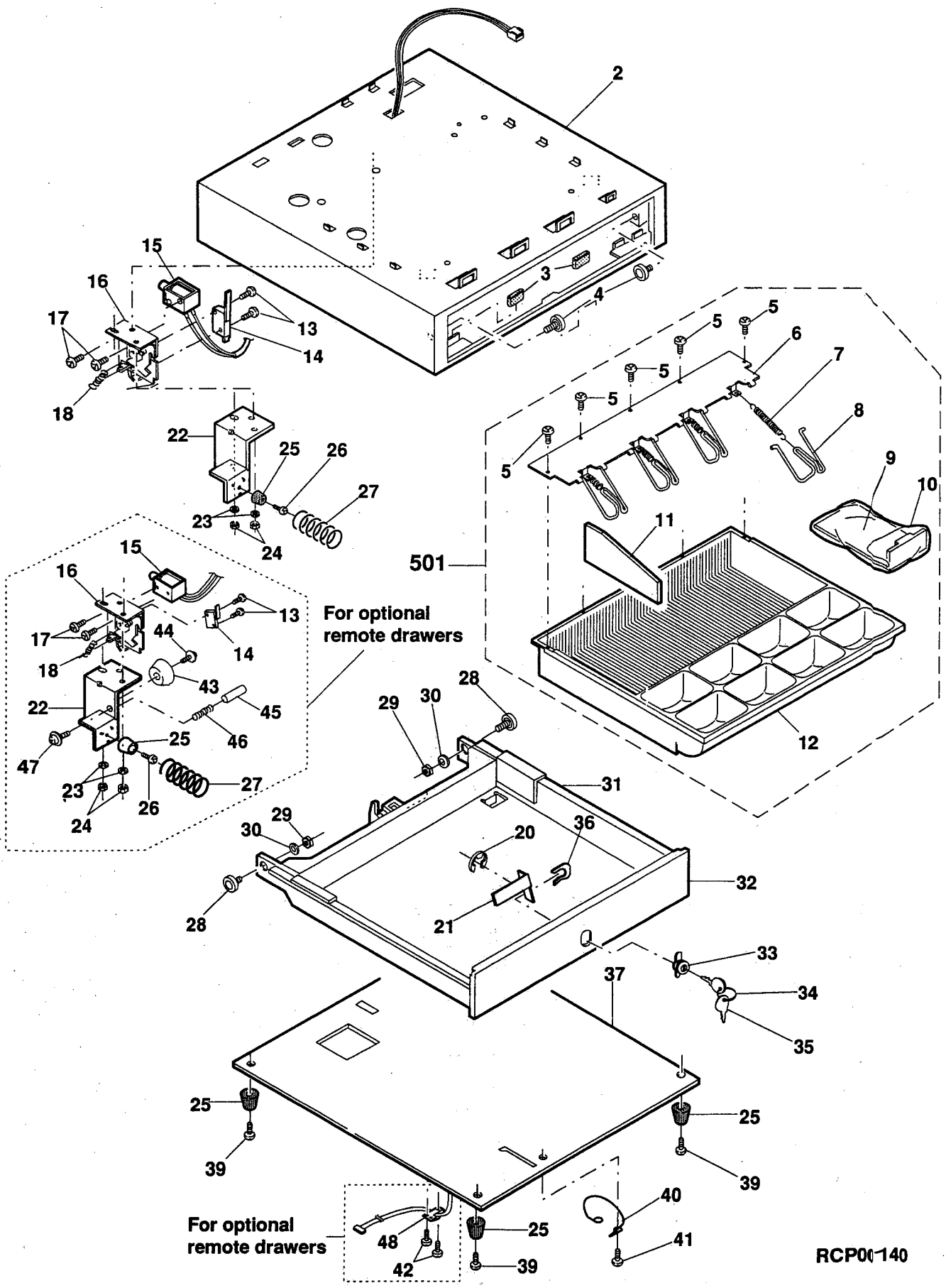


[4] Drawer box unit(SK423 type)

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	STD DW	SRV OP
2	CCABM71157BH07	BN	N	D	Cabinet unit [TQ,TS]	○	
	CCABM71139BH05	BN	N	D	Cabinet unit [KA,KB]	○	
	CCABM71172BHZZ	BN	N	E	Cabinet unit		○
3	PGUMM6695BHZZ	AE		D	Stopper gum	○	○
4	NRŌLP6650BHZZ	AP		C	Roller	○	○
5	XUPSD30P08000	AA		C	Screw (3×8)	○	○
6	LBRC−6663BHZZ	AQ		C	Bill bracket	○	○
7	MSPRT6714BHZZ	AE		C	Bill spring	○	○
8	MLEVF6695BHZZ	AK		C	Bill lever	○	○
9	PSKR−6629BHZZ	AL		C	Bill separator	○	○
10	SSAKA5004CCZZ	AA		D	Vinyl bag (100×300mm)	○	○
11	PSKR−6628BHZZ	AG		C	Separator	○	○
12	GCAS−6678BHZZ	BC		D	Money case (4B/8C)	○	○
13	LX−BZ6776BHZZ	AA		C	Screw	○	○
14	QSW−M6872BHZZ	AR		B	Micro switch	○	○
15	RPLU−6639BHZZ	AZ	N	B	Plunger	○	
	CPLU−6641BH02	BD	N	B	Plunger		○
16	CFRM−6683BH01	AW		C	Lock frame unit	○	○
17	LX−BZ6775BHZZ	AA		C	Screw	○	○
18	MSPRT6713BHZZ	AD		C	Open lever spring	○	○
20	XRESJ50−06000	AA		C	E type ring (5mm)	○	○
21	MCAMM6633BHZZ	AG		C	Lock cam	○	○
22	LFRM−6682BHZZ	AN		C	Bell frame	○	○
23	XWSSD40−10000	AA		C	Washer (4mm)	○	○
24	XNESD40−32000	AA		C	Nut (M4)	○	○
25	PGUMM6696BHZZ	AE		C	Gum leg	○	○
26	XHBSD30P12000	AA		C	Screw (3×12)	○	○
27	MSPRC6712BHZZ	AF		C	Push out spring	○	○
28	NRŌLP6650BHZZ	AP		C	Roller	○	○
29	XNESD60−50000	AA		C	Nut (M6)	○	○
30	XWSSD60−15000	AA		C	Washer (6mm)	○	○
31	CCAS−6677BH01	BC		D	Case unit	○	○
32	GCŌVA7036BHZZ	AS		D	Front cover	○	○
33	LKGiW7330BHZZ	AY		B	Lock key(body)	○	○
34	PRNGT6637BHZZ	AA		C	Key ring	○	○
35	LKGiM7331BHZZ	AE		B	Lock key (1pc)	○	○
36	MSPRK6718BHZZ	AF		C	Lock key spring	○	○
37	LPLTM6674BHZZ	AZ		D	Bottom plate	○	○
39	XHBSD40P15000	AA		C	Screw (4×15)	○	○
40	MSPRB6711BHZZ	AD		C	Earth spring	○	○
41	XHPSC30P08000	AA		C	Screw (3×8)	○	○
42	XHPSC30P08000	AA		C	Screw (3×8)		○
43	RALML6647BHZZ	AR	N	B	Bell		○
44	XBPSD40P06K00	AA		C	Screw (4×6K)		○
45	NSFTM6650BHZZ	AD	N	C	Bell hammer		○
46	MSPRC6715BHZZ	AE	N	C	Bell spring		○
47	XBPSD40P06000	AA		C	Screw (4×6)		○
48	LHLDW4081CCZZ	AC		C	Cable holder		○
501	CCAS−6678BH01	BK		E	Money case unit (4B/8C)	○	○
502	GDRW−6678BHZA	BG		D	Drawer case unit (Include №28~32)	○	○
503	DUNT−1306BHZZ	AX		E	Lock key unit (Include №20,21,33~36)	○	○
	(Unit)						
901	GBŌXD7098BHZA	BX	N	E	Drawer box unit [KA,KB]	○	
	GBŌXD7106BHZA	BX	N	E	Drawer box unit [TQ,TS]	○	
	GBŌXD7114BHZZ	BW	N	E	Drawer box unit		○

NOTE 1: STD: Standard parts
SRV OP : Optional parts as service route

4 Drawer box unit(SK423 type)



5 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	VCCCPU1HH300J	AA		C	Capacitor (50WV 30PF)	[C23,24,30,31]
2	VCCCPU1HH330J	AB		C	Capacitor (50WV 33PF)	[C28]
3	VCCCPU1HH220J	AA		C	Capacitor (50WV 22PF)	[C29]
4	VCKYPU1HB151K	AA		C	Capacitor (50WV 150PF)	[C25,36]
5	VCKYPU1HB102K	AA		C	Capacitor (50WV 0.001μF)	[C13,17,18,32,42]
6	VCKYPU1HB103K	AA		C	Capacitor (50WV 0.01μF)	[C16]
7	VCKYPU1HB331K	AA		C	Capacitor (50WV 330PF)	[C21,22,26,37]
8	VCQYNA1HM333K	AA		C	Capacitor (50WV 0.033μF)	[C2]
9	VCQYNA1HM473K	AA		C	Capacitor (50WV 0.047μF)	[C27]
10	VCEAGA1HW106M	AA		C	Capacitor (50WV 10μF)	[C11,14]
11	VCEAGA1HW335M	AB		C	Capacitor (50WV 3.3μF)	[C5,10,20]
12	VCEAGA1CW106M	AA		C	Capacitor (16WV 10μF)	[C6,33]
13	RCORF6685BHZZ	AC		C	Bead core (BFB2070RZ)	[B1~26]
14	VSDSA001-B/-1	AA		B	Transistor (2SA733-B)	[Q5,6,7]
15	VSDSC001-B/-1	AA		B	Transistor (DSC001-B)	[Q2]
16	VCEAGA1HW107M	AA		C	Capacitor (50WV 100μF)	[C4]
17	VCEAGA1CW337M	AB		C	Capacitor (16WV 330μF)	[C7]
18	VCEAGA1CW477M	AB		C	Capacitor (16WV 470μF)	[C8]
19	VCEAGA1CW105M	AA		C	Capacitor (16WV 1.0μF)	[C19]
20	QFSHD5002CHZZ	AB		C	Fuse holder	[Fuse1,2]
21	VHD1N4002G/-1	AA		B	Diode (1N4002G)	[D2,5,19]
22	VHD1SS41B//-1	AB		B	Diode (1SS41B)	[D3]
23	VHDDSS133HV-1	AA		B	Diode (DSS133HV)	[D6,7,8,10,11,18]
24	VHDRB721Q//-1	AE		B	Diode (RB721Q)	[D13,14,15,16,17]
25	VHEMTZ9.1C/-1	AA		B	Zener diode (MTZ9.1C)	[ZD4]
26	VHEMTZ4.3B/-1	AA		B	Zener diode (MTZ4.3B)	[ZD2]
27	VHEMTZ5.6A/-1	AA		B	Zener diode (MTZ5.6A)	[ZD1]
28	VHEMTZ3.0A/-1	AB		B	Zener diode (MTZ3.0A)	[ZD5]
29	VRD-RC2EY182J	AA		C	Resistor (1/4W 1.8KΩ ±5%)	[R11]
30	VRD-RC2EY101J	AA		C	Resistor (1/4W 100Ω ±5%)	[R31]
31	VRD-RC2EY103J	AA		C	Resistor (1/4W 10KΩ ±5%)	[R15,32,33,34,48]
32	VRD-RC2EY123J	AA		C	Resistor (1/4W 12KΩ ±5%)	[R2,16,18,25]
33	VRD-RC2EY153J	AA		C	Resistor (1/4W 15KΩ ±5%)	[R14,19,22,38,39,50,51]
34	VRD-RC2EY153G	AA		C	Resistor (1/4W 15KΩ ±2%)	[R55]
35	VRD-RC2EY183J	AA		C	Resistor (1/4W 18KΩ ±5%)	[R8]
36	VRD-RC2EY102J	AA		C	Resistor (1/4W 1.0KΩ ±5%)	[R27,28,30,52,53]
37	VRD-RC2EY222J	AA		C	Resistor (1/4W 2.2KΩ ±5%)	[R12,13,26]
38	VRD-RC2EY272J	AA		C	Resistor (1/4W 2.7KΩ ±5%)	[R35,37]
39	VRD-RC2EY221J	AA		C	Resistor (1/4W 220Ω ±5%)	[R6,3]
40	VRD-RC2EY202J	AA		C	Resistor (1/4W 2.0KΩ ±5%)	[R47]
41	VRD-RC2EY332J	AA		C	Resistor (1/4W 3.3KΩ ±5%)	[R9,23]
42	VRD-RC2EY331J	AA		C	Resistor (1/4W 330Ω ±5%)	[R4]
43	VRD-RC2EY334J	AA		C	Resistor (1/4W 330KΩ ±5%)	[R46]
44	VRD-RC2EY333J	AA		C	Resistor (1/4W 33KΩ ±5%)	[R0,7]
45	VRD-RC2EY472J	AA		C	Resistor (1/4W 4.7KΩ ±5%)	[R17,40,41,42]
46	VRD-RC2EY562J	AA		C	Resistor (1/4W 5.6KΩ ±5%)	[R5]
47	VRD-RC2EY563J	AA		C	Resistor (1/4W 56KΩ ±5%)	[R56]
48	VRD-RC2EY823J	AA		C	Resistor (1/4W 82KΩ ±5%)	[R45]
49	VRD-RC2EY473J	AA		C	Resistor (1/4W 47KΩ ±5%)	[R10,20,21,24,43,44,57]
50	VRD-RC2EY822G	AA		C	Resistor (1/4W 8.2KΩ ±2%)	[R54]
51	VRD-RC2EY912G	AA		C	Resistor (1/4W 9.1KΩ ±2%)	[R36]
52	VHiD78214-F83	AY		B	IC (uPD78214)	[IC7]
53	VHiD75206-730	AX		B	IC (D75206-730)	[IC8]
54	VHi27256RDD1A	AZ	N	B	IC (27256RDD1A)	[IC10]
55	VHiHM62256L15	BR		B	IC (HM62256L15)	[IC9]
56	QSOCZ6428ACZZ	AE		C	IC socket (28pin)	[IC10]
57	VHiMC74HC373N	AK		B	IC (MC74HC373N)	[IC12]
58	VHiMC74HC138N	AG		B	IC (MC74HC138N)	[IC13]
59	VHiKiD65003AP	AE		B	IC (KD65003AP)	[IC2,3]
60	VHiSTA401A/-1	AP		B	IC (STA401A)	[IC4,5]
61	VHiM54567P/-1	AK		B	IC (M54567P)	[IC6]
62	VHiNE555///-1	AG		B	IC (NE555)	[IC11]
63	VHiM51203TL-1	AF		B	IC (M51203TL)	[IC14]
64	VS2SC4153-/-1	AG		B	Transistor (2SC4153)	[Q3]
65	VS2SB881-//-1	AH		B	Transistor (2SB881)	[Q1,4]
66	VHD1D4B42//-1	AD		B	Diode (1D4B42)	[DB1]
67	RCRSP1003CCZZ	AT		B	Crystal (32KHz)	[X2]
68	RCRSP2327RCZZ	AD		B	Crystal (12MHz)	[X1]
69	RCRM-1011CCZZ	AD		B	Oscillator (4.19MHz)	[X3]
70	VCEAGA1HW228M	AB		C	Capacitor (50WV 2200μF)	[C9]
71	RC-EZ478CRC1J	AQ	N	C	Capacitor (4700μF/63V)	[C1]
72	RALMB6645RCZZ	AH		B	Buzzer (QMX05)	[BUZ]
73	QCNCM1101BHZZ	AC		C	Connector (5273-2)	[CN1]
74	QCNCM7057BHZZ	AB		C	Connector (5045-3)	[CN7,8]
75	QCNCM6865RC0C	AF		B	Connector (3pin)	[CN17]
76	QCNW-7605RCZZ	AH		C	Printer connector (15pin)	[CN5]
77	QCNW-7604RCZZ	AN		C	Printer connector (9pin)	[CN6]
78	QCNCM6865RC0B	AA		B	Connector (2pin)	[CN4]
79	QCNCW7080BHZZ	AB		C	Connector (2P)(NE5267-02)(Red)	[CN3,NE]
80	QCNCW7081RCZZ	AB		C	Connector (2P)(B/T5267-02)(Blue)	[CN2]

5 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
81	QCNCW5111BH2G	AK		C	Connector (27P)(K/B)	[CN15]
82	QCNCM6865RC1J	AC		C	Connector (10pin)	[CN14]
83	QCNCM6865RC0H	AC		C	Connector (8pin)	[CN13]
84	QCNCM6969RC1J	AD		C	Connector (10pin)	[CN12]
85	QCNCM6969RC0H	AD		C	Connector (8pin)	[CN9,10,11]
⚠ 86	RTRNH6791RCZZ	AM		B	Converter transformer	[D-DC]
87	VHiSTR2024/-1	AR		B	IC (STR2024)	[IC1]
88	RCiLC6653BHZZ	AS		C	Choke coil (180μH)	[L1]
⚠ 89	QFS-C1035CCZZ	AE		A	Fuse (1.6A 250V)	[Fuse 1]
⚠ 90	QFS-C5012CCZZ	AF		A	Fuse (T500mA/250V)	[Fuse 2]
91	PRDAF6654BHZZ	AM		C	Heat sink	
92	QCNCW5111BH2A	AK		C	Connector (21P)(Option)	[CN16]
93	LX-BZ6644BHZZ	AA		C	Screw (M3.5×8S)	
94	XBPSD30P10000	AA		C	Screw (3×10)	
95	RMPTC7102QCJB	AB		B	Block resistor (1.0KΩ×7 1/8W ±5%)	[RA1]
96	RMPTC8473QCJB	AC		B	Block resistor (47KΩ×8 1/8W ±10%)	[RA2]
97	VRS-HT3AA332J	AB		C	Resistor (1W 3.3KΩ ±5%)	[R1]
98	VHDEU1Z////-1	AB		B	Diode (EU1Z)	[D4]
99	VHERD5.1EB1-1	AB		B	Zener diode (RD5.1EB1)	[ZD3]
100	QCNCW6766RC0B	AF		C	Connector	[32K]
101	QCNW-7621BHZZ	AC		C	Wire VP	[CN9~10,IC7~GND]
102	QCNW-7594RCZZ	AK		C	FPC (27P)(K/B)	
103	VVK10MT20GY-1	AW		B	Display tube	
104	LANGK7410BHZZ	AM		C	PWB angle	
105	LANGK7499BHZZ	AF		C	PWB angle	
106	XBPSD30P06KS0	AA		C	Screw (M3×6)	
107	LHLDW6802BHZZ	AD		C	Holder	
108	QCNW-7607BHZZ	AF		C	Earth wire (PWB to keyboard)	
109	RMPTE6331BHZZ	AF		B	Capacitor array (330PF×6)	[CA1]
110	RMPTE8101RCHZ	AE		B	Capacitor array (100PF×8)	[CA2]
111	VCEAGA1HW476M	AB		C	Capacitor (40WV 47μF)	[VP~GND]
112	VCEAGA1CW106M	AA		C	Capacitor (16WV 10μF)	[C45]
113	VCKYPA1HB222K	AA		C	Capacitor (50WV 2200PF)	[C52]
114	RC-Z1N104BHZZ	AC		C	Capacitor (12WV 0.1μF)	[C46,40,38]
115	RC-EZ106ARC1A	AD		C	Capacitor (10WV 10μF)	[C39,C5O,IC7~GND]
116	RC-EZ336ARC1A	AB		C	Capacitor (10WV 33μF)	[C41]
117	RVR-M5411BHZZ	AC		B	Variable resistor (50KΩ)	[VR1]
118	QCNCM6766RC0B	AF		C	Short pin	[JP]
	(Unit)					
901	CPWBF7318BH02	CE	N	E	Main PWB unit	

6 Key I/F PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	QCNCW7076RC0i	AD		C	Connector (9pin)(IN K/B)	[CN2]
2	QCNCW7076RC1J	AC		C	Connector (10pin)(IN K/B)	[CN3]
3	QCNCW5111BH2G	AK		C	Connector (27P)(K/B)	[CN1]
4	QCNCW1084ACZZ	AG		C	Connector (9pin)	[Sio CN]
5	RFiLN6014RCZZ	AC		C	Filter (331)	[EF1~4]
6	QCNW-7607BHZZ	AF		C	GND wire	
7	VHDDSS133HV-1	AA		B	Diode (DSS133HV)	[D5~14]
8	RCORF6673RCZZ	AB		C	Beads core (DR35C)	[B1,2]
9	QCNW-7608BHZZ	AG		C	Mode switch cable (13pin)	
	(Unit)					
901	CPWBF7319BH02	BC	N	E	Key I/F PWB unit	

7 Pop-up PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	QCNCW6918BH08	AP		C	Connector (8P)(Pop up cable)	
2	QCNCW6918BH10	AR		C	Connector (10P)(Pop up cable)	
3	VRD-RC2EY5R6J	AA		C	Resistor (1/4W 5.6Ω ±5%)	[R58,59]
4	VVK7MT143G/-1	AX		B	Display tube	
	(Unit)					
901	CPWBF7320BH01	BF		E	Pop up PWB unit	

8 Relay PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	QCNCM6865RC0B	AA		B	Connector (2pin) [NE,STAMP,ST]
	(Unit)				
901	CPWBF7330BH01	AG	N	E	Relay PWB unit

9 Articles for consumption

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	UiNK-1001CCZZ	AK		S	Ink (5cc)
2	PRBN-6642RCZZ	AU		S	Ink ribbon
3	DPAPR1022CSZZ	AV		S	Roll papper (5rolls/1pack)

10 Service route options & Service tools

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	LKGiM7113RCZZ	AK		B	SRV key
2	GCŌVB6985RCZZ	AY		D	Key cover
3	LKGiM7126RCZZ	AL		B	Mode key grip cover (OP key only)
4	DKiT-8644BHZZ	BF		S	Shield plate kit (Include No.21~30)
5	DKiT-8653RCZZ	BA	N	S	Journal near end sensor kit (include No.38,39)
6	DKiT-8648BHZZ	AZ	N	S	Stay down key unit (include No.31~37)
7	GBŌXD7114BHZZ	BW	N	S	Remote drawer box unit
9	UKŌG-6704RCZZ	AV		S	Sio loop back connector
10	UKŌG-6678RCZZ	AX		S	Trans extension PWB
11	UKŌGZ6712RCZZ	AP		S	Keyboard extension cable
21	DUNTK1749BHZZ	BH		S	Shield plate
22	PGUMM6696BHZZ	AE		C	Rubber foot
23	XUBSD30P14000	AA		C	Screw (3×14)
24	XUBSD30P08000	AA		C	Screw (3×8)
25	LX-BZ6780BHZZ	AB		C	Screw
26	XHBSD30P25000	AA		C	Screw (3×25)
27	LX-BZ6755BHZZ	AB		C	Screw
28	LX-BZ6781BHZZ	AB		C	Screw
29	LBSHC0004BHZZ	AC		C	Clamp
30	TLABH6918BHZZ	AM		D	Inst. manual
31	JKNBZ6865BHZZ	AD		C	Push switch knob
32	QCNCW7587BHZZ	AH	N	C	Push switch cable
33	QSW-P6849RCZZ	AP		B	Push switch
34	QPWBF7309BHZZ	AD	N	C	Push SW PWB
35	XBPSF30P05000	AA		C	Screw (3×5)
36	HDECP6826BHSG	AN		C	Deco. panel
37	VHDDSS133HV-1	AA		B	Diode (DSS133HV)
38	DUNTK1881RCZZ	AZ		S	Sensor unit
39	QCNW-7636BHZZ	AL		C	Relay cable

11 AC CORD

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
⚠ 1	QACCJ1413QCZZ	AG		B	AC cord Japan, RB6, RB7, RC5, SC, SD
⚠	QACCA3441QCZZ	AL		B	AC cord SB
⚠ 2	QACCD8411QCZZ	AN		B	AC cord U. S. A, Canada, Japan (Okinawa), Guam
	QTANP0004HCZZ	AB		B	Lug terminal U. S. A, Canada
⚠ 3	QACCE3120QCN5	AP		B	AC cord RA1, RA2, RB3, RB5, SG, TQ, TR, TS, K AC cord Yugoslavia
⚠ 4	QPLGA4501CCZZ	AK		B	Plug SE
⚠	QCNW-6629RCZZ	AN		B	AC cord SE
⚠ 5	QPLGA0018WRE0	AN		B	Plug SH, RA5
⚠	QCNW-6629RCZZ	AN		B	AC cord SH, RA5, SHE
⚠	PHOG-1023CCZZ	AB		B	Bushing for AC cord SH, RA5, SHE
⚠ 6	QACCL1018CCZZ	AS		B	AC cord KA, SL
7	QTANP0004HCZZ	AB		B	Lug terminal RC2, SM, SMT, RC1, SBA, RB8
	QPLGA0006QCZZ	AN		B	Plug KB, SM, SMT, RC1, SBA, RB8, RC2
	QCNW-1035CCZZ	AH		B	AC cord KB, RC1, RC2, SM, SMT, SBA
⚠	QCNW-6629RCZZ	AN		B	AC cord RB8
⚠ 8	QCNW-6629RCZZ	AN		B	AC cord RB4 (AC cord only. The plug is not included.)
⚠ 9	QACCZ3423QCZZ	AH		B	AC cord SJ, SJ2

Note : Instead of AC cords QACCZ3421QCZZ/QACCK1008CCZZ, the AC cord QACCE1422QCZZ(No.3) is supllied as service spare part.

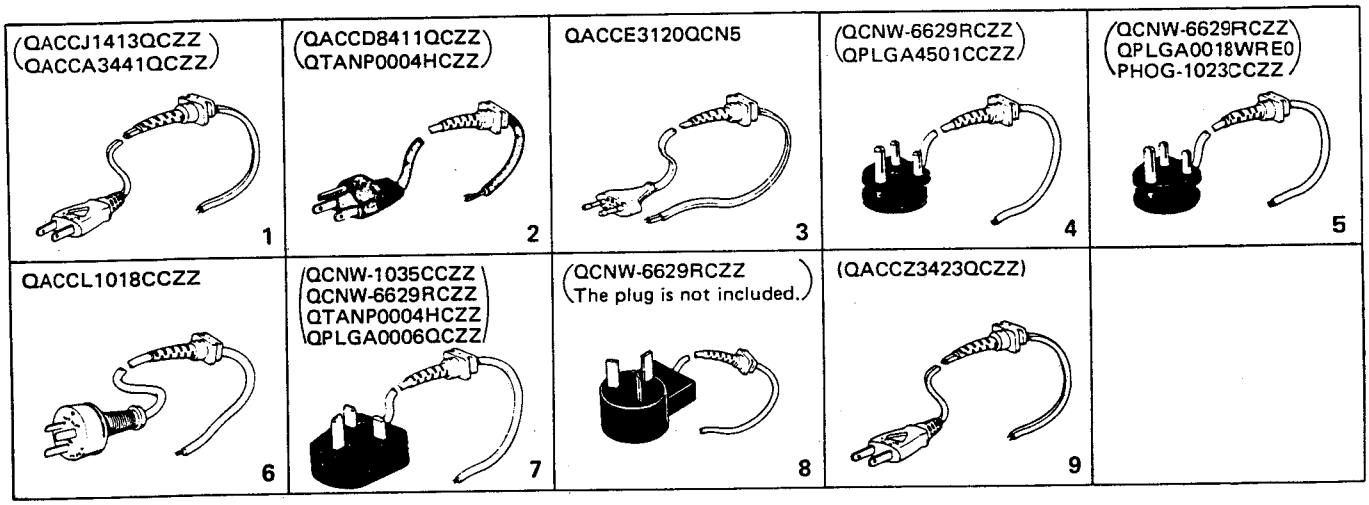


Table of destinations

SELECTION CODE	COUNTRIES
U	U. S. A., Guam
A	Canada
TS	Germany
TQ	SEEG territory other than Germany (Stamp : English)
TR	SEEG territory other than Germany (Stamp : Spanish)
KB	U. Kingdom
KA	Australia

SELECTION CODE	COUNTRIES
SB	Saudi Arabia (127V area)
SBA	Saudi Arabia (220V area)
SC	Taiwan
SD	Venezuela
SE	Hong Kong
SG	Lebanon, Syria, Greece, Pakistan, Iran, Egypt, Thailand, Iraq, Mauritius, Seychelles, Tahiti, Jordan, Sudan, Turkey
SH	South Africa (U. S. A. version)
SHE	South Africa (Europe version)
SJ	Philippines (Europe version)
SJ2	Philippines (U. S. A. version)
SM	Kuwait, Qatar, Oman, UAE, Malta, Bahrain
SMT	Nigeria, Yemen, Kenya

SELECTION CODE	COUNTRIES
K	Korea

SELECTION CODE	COUNTRIES
RA1	Morocco, Algeria, Tunisia, West Africa
RA2	Chile, Uruguay, Peru, Argentina, Paraguay
RA5	Sri Lanka

SELECTION CODE	COUNTRIES
RB3	Indonesia
RB4	
RB5	Cyprus
RB6	Panama
RB7	Barbados
RB8	Malaysia (U. S. A. version)

SELECTION CODE	COUNTRIES
RC1	Malaysia (Europe version)
RC2	Singapore
RC5	Dominican Republic, Ecuador

ERA430V

■ Index

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
〔C〕					
CANGG7500BH01	1- 9	AU	N	C	
CCABM7139BH05	4- 2	BN	N	D	
CCABM7157BH07	4- 2	BN	N	D	
CCABM7172BHZZ	4- 2	BN	N	E	
CCAS-6677BH01	4- 31	BC		D	
CCAS-6678BH01	4- 501	BK		E	
CFRM-6683BH01	4- 16	AW		C	
CPLU-6641BH02	4- 15	BD	N	B	
CPWBF7318BH02	1- 30	CE	N	E	
〃	5- 901	CE	N	E	
CPWBF7319BH02	2- 18	BC	N	E	
〃	6- 901	BC	N	E	
CPWBF7320BH01	1- 4	BF		E	
〃	7- 901	BF		E	
CPWBF7330BH01	1- 78	AG	N	E	
〃	8- 901	AG	N	E	
CSHEP6802BH01	2- 11	AZ	N	C	
〔D〕					
DKiT-8644BHZZ	10- 4	BF		S	
DKiT-8648BHZZ	10- 6	AZ	N	S	
DKiT-8653RCZZ	10- 5	BA	N	S	
DPAPR1022CSZZ	9- 3	AV		S	
DUNT-1306BHZZ	4- 503	AX		E	
DUNT-1817BHZZ	1- 101	AY	N	E	
DUNTK1749BHZZ	10- 21	BH		S	
DUNTK1812BHZZ	2- 501	BR	N	E	
DUNTK1881RCZZ	10- 38	AZ		S	
〔G〕					
GBŌXD7098BHZA	4- 901	BX	N	E	
GBŌXD7106BHZA	4- 901	BX	N	E	
GBŌXD7114BHZZ	4- 901	BW	N	E	
〃	10- 7	BW	N	S	
GCABA7149BHZZ	1- 76	BC		D	
GCABB7084BHZA	1- 3	AP	N	D	
GCABB7165BHZZ	1- 17	BD	N	D	
GCAS-6678BHZZ	4- 12	BC		D	
GCŌVA7036BHZZ	4- 32	AS		D	
GCŌVB6985RCZZ	10- 2	AY		D	
GCŌVB7058BHZZ	1- 34	AD	N	D	
GCŌVB7059BHZZ	1- 2	AV	N	D	
GCŌVH7034BHZZ	1- 11	AE		D	
GCŌVH7035BHZZ	1- 35	AS		D	
GDRW-6678BHZA	4- 502	BG		D	
GFTAB6754BHZZ	1- 20	AF		D	
〔H〕					
HBDGD6888BHSA	1- 1	AE	N	D	
HDECP6826BHSF	1- 18	AN	N	D	
HDECP6826BHSG	10- 36	AN		C	
〔J〕					
JKNBZ6865BHZZ	10- 31	AD		C	
〔K〕					
Ki-ŌB6763RCZZ	1- 12	BW	N	E	
〔L〕					
LANGK7410BHZZ	1- 32	AM		C	
〃	5- 104	AM		C	
LANGK7499BHZZ	1- 50	AF		C	
〃	5- 105	AF		C	
LBNDJ2003SCZZ	1- 7	AA		C	
LBNDJ6636BHZZ	1- 59	AD	N	C	
LBNDJ6637BHZZ	1- 63	AF		C	
LBRC-6663BHZZ	4- 6	AQ		C	
LBSHC0004BHZZ	10- 29	AC		C	
LFRM-6682BHZZ	4- 22	AN		C	
LFRM-6685BHZZ	1- 60	AZ	N	C	
LHLDW0006SCZZ	1- 6	AB		C	
LHLDW4081CCZZ	4- 48	AC		C	
LHLDW6802BHZZ	1- 53	AD		C	
〃	5- 107	AD		C	
LHLDW6820BHZZ	1- 72	AE	N	C	
LHLDW6821BHZZ	1- 75	AD	N	C	
LHLDZ6816BHZZ	1- 52	AR	N	C	
LKGiM7110RCZZ	2- 14	AG		B	
〃	3- 6	AG		B	
LKGiM7111RCZZ	2- 14	AG		B	
〃	3- 6	AG		B	
LKGiM7113RCZZ	10- 1	AK		B	
LKGiM7126RCZZ	10- 3	AL		B	
LKGiM7129RCZZ	2- 14	AE		B	
〃	3- 6	AE		B	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
LKGiM7331BHZZ	3- 5	AE		B	
〃	4- 35	AE		B	
LKGiM7356BHZZ	1- 44	AK	N	B	
〃	3- 14	AK	N	B	
LKGiW7330BHZZ	4- 33	AY		B	
LKGiW7355BHZZ	1- 43	AX	N	B	
LPLTM6674BHZZ	4- 37	AZ		D	
LX-BZ1085CCZZ	1- 13	AA		C	
LX-BZ6644BHZZ	5- 93	AA		C	
LX-BZ6754RCZZ	1- 26	AA		C	
LX-BZ6755BHZZ	10- 27	AB		C	
LX-BZ6755RCZZ	1- 38	AA		C	
LX-BZ6775BHZZ	4- 17	AA		C	
LX-BZ6776BHZZ	4- 13	AA		C	
LX-BZ6780BHZZ	1- 38	AB		C	
〃	10- 25	AB		C	
LX-BZ6781BHZZ	1- 26	AB		C	
〃	10- 28	AB		C	
〔M〕					
MCAMM6633BHZZ	4- 21	AG		C	
MLEVF6695BHZZ	4- 8	AK		C	
MSPRB6711BHZZ	4- 40	AD		C	
MSPRC6712BHZZ	4- 27	AF		C	
MSPRC6715BHZZ	4- 46	AE	N	C	
MSPRK6718BHZZ	4- 36	AF		C	
MSPRK6729RCZZ	1- 65	AC		C	
MSPRK6730BHZZ	1- 47	AC	N	C	
MSPRT6713BHZZ	4- 18	AD		C	
MSPRT6714BHZZ	4- 7	AE		C	
〔N〕					
NBLTK6629RCZZ	1- 68	AD		C	
NGERH6637RCZZ	1- 67	AD		C	
NGERH6638RCZZ	1- 66	AC		C	
NGERH6639RCZZ	1- 64	AC		C	
NRŌLP6650BHZZ	4- 4	AP		C	
〃	4- 28	AP		C	
NSFTM6650BHZZ	4- 45	AD	N	C	
〔P〕					
PCUSG7017BHZZ	1- 58	AC		C	
PCUT-6647BHZZ	1- 55	AE	N	C	
PFiLW6889BHSF	1- 5	AP	N	D	
PFiLW6922BHSF	1- 16	AS	N	D	
PFiLW6930BHZZ	1- 24	AK	N	D	
PGiDH6710BHZZ	3- 15	AF		C	
PGUMM6695BHZZ	4- 3	AE		D	
PGUMM6696BHZZ	4- 25	AE		C	
〃	10- 22	AE		C	
PRBN-6642RCZZ	9- 2	AU		S	
PRDAF6654BHZZ	5- 91	AM		C	
PRNGT6637BHZZ	4- 34	AA		C	
PRNGT6639BHZZ	1- 45	AB	N	C	
PSHEP6681RCZZ	3- 3	AC		D	
PSKR-6628BHZZ	4- 11	AG		C	
PSKR-6629BHZZ	4- 9	AL		C	
PSTM-6789RCZZ	1- 15	AT		C	
PSTM-6790RCZZ	1- 15	AS		C	
〔Q〕					
QACCE3120QCN5	1- 39	AL		B	
QACCL1018CCZZ	1- 39	AR		B	
QCNCM1101BHZZ	5- 73	AC		C	
QCNCM6766RC0B	5- 118	AF		C	
QCNCM6865RC0B	5- 78	AA		B	
〃	8- 1	AA		B	
QCNCM6865RC0C	5- 75	AF		B	
QCNCM6865RC0H	5- 83	AC		C	
QCNCM6865RC1J	5- 82	AC		C	
QCNCM6969RC0H	5- 85	AD		C	
QCNCM6969RC1J	5- 84	AD		C	
QCNCM7057BHZZ	5- 74	AB		C	
QCNCW1084ACZZ	6- 4	AG		C	
QCNCW5111BH2A	5- 92	AK		C	
QCNCW5111BH2G	5- 81	AK		C	
〃	6- 3	AK		C	
QCNCW6766RC0B	5- 100	AF		C	
QCNCW6918BH08	1- 23	AP		C	
〃	7- 1	AP		C	
QCNCW6918BH10	1- 22	AR		C	
〃	7- 2	AR		C	
QCNCW7076RC0i	6- 1	AD		C	
QCNCW7076RC1J	6- 2	AC		C	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
QCNCW7080BHZZ	5- 79	AB		C	
QCNCW7081RCZZ	5- 80	AB		C	
QCNCW7587BHZZ	10- 32	AH	N	C	
QCNW-1035CCZZ	1- 39	AL		B	
QCNW-7451BHZZ	1- 40	AG		C	
QCNW-7594RCZZ	1- 28	AK		C	
//	5- 102	AK		C	
QCNW-7604RCZZ	1- 70	AN		C	
//	5- 77	AN		C	
QCNW-7605RCZZ	1- 69	AH		C	
//	5- 76	AH		C	
QCNW-7607BHZZ	1- 29	AF		C	
//	1- 80	AF		C	
//	5- 108	AF		C	
//	6- 6	AF		C	
QCNW-7608BHZZ	2- 19	AG		C	
//	6- 9	AG		C	
QCNW-7609BHZZ	1- 61	AF		C	
QCNW-7609BH01	1- 73	AF		C	
QCNW-7621BHZZ	5- 101	AC		C	
QCNW-7622BHZZ	1- 57	AG		C	
QCNW-7636BHZZ	1- 79	AL		C	
//	10- 39	AL		C	
QFS-C1035CCZZ	5- 89	AE		A	
QFS-C5012CCZZ	5- 90	AF		A	
QFSHD5002CHZZ	5- 20	AB		C	
QPLGA0006QCZZ	1- 39	AQ		C	
QPWBF7309BHZZ	10- 34	AD	N	C	
QSOCZ6428ACZZ	5- 56	AE		C	
QSW-M6872BHZZ	4- 14	AR		B	
QSW-P6849RCZZ	10- 33	AP		B	
【R】					
RALMB6645RCZZ	5- 72	AH		B	
RALML6647BHZZ	4- 43	AR	N	B	
RC-EZ106ARC1A	5- 115	AD		C	
RC-EZ336ARC1A	5- 116	AB		C	
RC-EZ478CRC1J	5- 71	AQ	N	C	
RC-Z1N104BHZZ	5- 114	AC		C	
RCiLC6653BHZZ	5- 88	AS		C	
RCORF5029SCZZ	1- 81	AL		C	
RCORF6673RCZZ	6- 8	AB		C	
RCORF6685BHZZ	5- 13	AC		C	
RCORF7001SCZZ	1- 82	AL		C	
RCRM-1011CCZZ	5- 69	AD		B	
RCRSP1003CCZZ	5- 67	AT		B	
RCRSP2327RCZZ	5- 68	AD		B	
RFiLN6014RCZZ	6- 5	AC		C	
RMPTC7102QCJB	5- 95	AB		B	
RMPTC8473QCJB	5- 96	AC		B	
RMPTE6331BHZZ	5- 109	AF		B	
RMPTE8101RCHZ	5- 110	AE		B	
RPLU-6639BHZZ	4- 15	AZ	N	B	
RTRNH6791RCZZ	5- 86	AM		B	
RTRNP6857BHZZ	1- 36	BC	N	B	
RTRNP6858BHZZ	1- 36	BC	N	B	
RVR-M5411BHZZ	5- 117	AC		B	
【S】					
SPAKA7836RCZZ	3- 4	AM		D	
SPAKA7837RCZZ	3- 2	AM		D	
SPAKC6215BHZZ	3- 1	AZ	N	D	
SSAKA3012CCZZ	3- 7	AA		D	
SSAKA5004CCZZ	3- 10	AA		D	
//	4- 10	AA		D	
SSAKH3015CCZZ	3- 9	AA		D	
【T】					
TCADH6654RCZZ	3- 11	AB		D	
TCADZ2001BHZA	3- 20	AM	N	D	
TCAUS1052CCZZ	3- 13	AB		D	
TCAUS6668RCZZ	1- 42	AA		D	
TGANE1001BHZA	3- 21	AF	N	D	
TiNSE7261BHZZ	3- 8	AT	N	D	
TiNSF7262BHZZ	3- 8	AT	N	D	
TiNSG7263BHZZ	3- 8	AT	N	D	
TiNSN7240BHZZ	3- 21	AF		D	
TiNSS7264BHZZ	3- 8	AT	N	D	
TLABH6918BHZZ	10- 30	AM		D	
TLABH6925BHZZ	2- 101	AN	N	D	
【U】					
UBATN6639RCZZ	1- 56	AS		B	
UBNDA1008CCZZ	3- 101	AA		C	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
UiNK-1001CCZZ	3- 19	AK		S	
//	9- 1	AK		S	
UKOG-6678RCZZ	10- 10	AX		S	
UKOG-6704RCZZ	10- 9	AV		S	
UKOGZ6712RCZZ	10- 11	AP		S	
UREL-6627RCZZ	3- 16	AK		C	
【V】					
VCCCPU1HH220J	5- 3	AA		C	
VCCCPU1HH300J	5- 1	AA		C	
VCCCPU1HH330J	5- 2	AB		C	
VCEAGA1CW105M	5- 19	AA		C	
VCEAGA1CW106M	5- 12	AA		C	
//	5- 112	AA		C	
VCEAGA1CW337M	5- 17	AB		C	
VCEAGA1CW477M	5- 18	AB		C	
VCEAGA1HW106M	5- 10	AA		C	
VCEAGA1HW107M	5- 16	AA		C	
VCEAGA1HW228M	5- 70	AB		C	
VCEAGA1HW335M	5- 11	AB		C	
VCEAGA1HW476M	5- 111	AB		C	
VCKYPA1HB222K	5- 113	AA		C	
VCKYPU1HB102K	5- 5	AA		C	
VCKYPU1HB103K	5- 6	AA		C	
VCKYPU1HB151K	5- 4	AA		C	
VCKYPU1HB331K	5- 7	AA		C	
VCQYNA1HM333K	5- 8	AA		C	
VCQYNA1HM473K	5- 9	AA		C	
VHDDSS133HV-1	5- 23	AA		B	
//	6- 7	AA		B	
//	10- 37	AA		B	
VHDEU1Z////-1	5- 98	AB		B	
VHDRB721Q//-1	5- 24	AE		B	
VHD1D4B42//-1	5- 66	AD		B	
VHD1N4002G/-1	5- 21	AA		B	
VHD1SS41B//-1	5- 22	AB		B	
VHEMTZ3.0A/-1	5- 28	AB		B	
VHEMTZ4.3B/-1	5- 26	AA		B	
VHEMTZ5.6A/-1	5- 27	AA		B	
VHEMTZ9.1C/-1	5- 25	AA		B	
VHERD5.1EB1-1	5- 99	AB		B	
VHiD75206-730	5- 53	AX		B	
VHiD78214-F83	5- 52	AY		B	
VHiHM62256L15	5- 55	BR		B	
VHiKiD65003AP	5- 59	AE		B	
VHiMC74HC138N	5- 58	AG		B	
VHiMC74HC373N	5- 57	AK		B	
VHiM51203TL-1	5- 63	AF		B	
VHiM54567P/-1	5- 61	AK		B	
VHiNE555///-1	5- 62	AG		B	
VHiSTA401A/-1	5- 60	AP		B	
VHiSTR2024/-1	5- 87	AR		B	
VHi27256RDD1A	5- 54	AZ	N	B	
VRD-RC2EY101J	5- 30	AA		C	
VRD-RC2EY102J	5- 36	AA		C	
VRD-RC2EY103J	5- 31	AA		C	
VRD-RC2EY123J	5- 32	AA		C	
VRD-RC2EY153G	5- 34	AA		C	
VRD-RC2EY153J	5- 33	AA		C	
VRD-RC2EY182J	5- 29	AA		C	
VRD-RC2EY183J	5- 35	AA		C	
VRD-RC2EY202J	5- 40	AA		C	
VRD-RC2EY221J	5- 39	AA		C	
VRD-RC2EY222J	5- 37	AA		C	
VRD-RC2EY272J	5- 38	AA		C	
VRD-RC2EY331J	5- 42	AA		C	
VRD-RC2EY332J	5- 41	AA		C	
VRD-RC2EY333J	5- 44	AA		C	
VRD-RC2EY334J	5- 43	AA		C	
VRD-RC2EY472J	5- 45	AA		C	
VRD-RC2EY473J	5- 49	AA		C	
VRD-RC2EY5R6J	7- 3	AA		C	
VRD-RC2EY562J	5- 46	AA		C	
VRD-RC2EY563J	5- 47	AA		C	
VRD-RC2EY822G	5- 50	AA		C	
VRD-RC2EY823J	5- 48	AA		C	
VRD-RC2EY912G	5- 51	AA		C	
VRS-HT3AA332J	5- 97	AB		C	
VSDSA001-B/-1	5- 14	AA		B	
VSDSC001-B/-1	5- 15	AA		B	
VS2SB881-//-1	5- 65	AH		B	

ERA430V

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	
VS2SC4153-/-1	5- 64	AG		B	
VVK10MT20GY-1	1- 54	AW		B	
//	5-103	AW		B	
VVK7MT143G/-1	7- 4	AX		B	
【X】					
XBBSC30P08000	1- 19	AA		C	
XBPSD30P04000	1- 10	AA		C	
XBPSD30P06KS0	1- 31	AA		C	
//	5-106	AA		C	
XBPSD30P10000	5- 94	AA		C	
XBPSD40P04000	1- 62	AA		C	
XBPSD40P06K00	4- 44	AA		C	
XBPSD40P06000	4- 47	AA		C	
XBPSF30P05000	10- 35	AA		C	
XHBSD30P12000	4- 26	AA		C	
XHBSD30P15000	1- 21	AA		C	
XHBSD30P18000	1- 25	AA		C	
XHBSD30P25000	1- 21	AA		C	
//	1- 25	AA		C	
//	10- 26	AA		C	
XHBSD40P15000	4- 39	AA		C	
XHPSC30P08000	4- 41	AA		C	
//	4- 42	AA		C	
XHPSD30P08000	1- 77	AA		C	
XJPSD30P12X00	1- 48	AB		C	
XJPSD30P16X00	1- 37	AB		C	
XNESD30-24000	1- 27	AA		C	
XNESD40-32000	4- 24	AA		C	
XNESD60-50000	4- 29	AA		C	
XRESJ50-06000	4- 20	AA		C	
XUBSD30P08000	1- 8	AA		C	
//	2- 12	AA		C	
//	10- 24	AA		C	
XUBSD30P12000	1- 33	AA		C	
XUBSD30P14000	10- 23	AA		C	
XUPSD30P06000	2- 2	AA		C	
XUPSD30P08000	4- 5	AA		C	
XUPSD30P10000	2- 20	AA		C	
XWSSD40-10000	4- 23	AA		C	
XWSSD60-15000	4- 30	AA		C	
【0】					
0DUB0DY000002	2- 15	AP		B	
0EMKT80020001	2- 4	AC		C	
0EMKT80220001	2- 8	AE		C	
0EMWK45531120	2- 6	AC		C	
0EMWK45531210	2- 10	AC		C	
0EMWK46465002	2- 7	AT		C	
0EMWK46466510	2- 5	AC		C	
0EMWK46466610	2- 9	AE		C	
0EMWK46530210	2- 3	AY		C	
0EMWK46530510	2- 13	AU		C	
0EMWK46531210	2- 16	AC		C	

PARTS CODE	NO.	PRICE RANK	NEW MARK	PART RANK	